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Contact sivamskr@gmail.com

Projects collected for u!!!

by M.Siva Kameswara Rao

(sivamskr@gmail.com)

Friends,

I have gone through several sites for the projects but could find very little info about things.

So I thought my small collection of projects would help you to get an idea over what range of projects you need to do.....

This is my small help. But hope u enjoy the ideas presented inside. You can add /change and put your own thoughts to electronify them!!!!!!
Hope u have all the great projects.....

“Wish U All The Best My Electronauts.....”

(Help me with the suggestions needed to improve along with any projects or ideas you have regarding the projects)

Your's

M.siva kameswara rao.

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by M.Siva Kameswara Rao

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PROJECTS LIST:

1. On/Off Switch Control Using Micro Controllers (Ir Based)
2. Control The Speed Of Vehicles
3. Automatic Railway Gate System
4. Solar Panel Control
5. Security Systems
6. PC To PC Communication (IR Based)
7. Real Time Scheduler
8. Remote Switching - Using Telephone Lines
9. Auto Timer
10. PC To PC Communication (FSK/ASK Based)
11. PC Interface ON/OFF Controls
12. Micro Controller Programmer Kit (89C51/52)
13. Micro Controller Programmer Kit (89C2051)
14. Satellite Signal Tracking System
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16. Digital Backup Mailer Using Micro Controller
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18. PC Based Remote Control Stepper Motor
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21. Wireless 4 Channel Telemetry
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24. Real Time Scheduler Cum Security System With Auto Dialer
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26. Continuous Data Backup And Control Drive For Temperature With PC Interfacing
27. Fault Analyzer using Micro Controller And PC With Area Map
28. Unit Commitment Using 8051 Micro Controller
29. Higher KVA transformer protector against high voltage ,low frequency, high temperature, high load current with data acquisition
30. Protection for ATM Systems with Finger Print Identification Technology
31. Attendance Marker using Finger Print Sensor
32. Electronic Safety Assistance for Blind
33. Turbidity Control Based On Microcontroller
34. Staff Identification And Details Using RFID

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ON/OFF SWITCH CONTROL USING MICRO-CONTROLLERS (IR BASED)

The main objective of the project is to reveal about the infrared communication between two devices via asynchronous serial communication.

Here we have selected four different 230V AC operated devices controlled by a handheld remote controller. Remote is called as host and receiver module is called as device. The entire project is designed using two micro controllers.

89C51 - located inside the device and

89C2051 - located in the host

We establish a bi-directional communication between host and device via synchronous serial communication using IR medium. The different AC operated devices are connected to simple ON/OFF relays. The host contains three modules: keyboard, micro controller unit, and IR transmitter. The firmware written in micro controller scans for switch depression and transmits appropriate position to the device then waits for acknowledgement from the device.

The host is operated by battery i.e., 9V cell. The device consists of three sections: IR receiver, micro controller section, and relay unit. The device receives communication code from host, accordingly ON/OFF control is performed and the device is operated on +5V, 12V power supply taken from AC mains.

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CONTROL THE SPEED OF VEHICLES

The main objective of the project is to control the speed of vehicles, which exceed the specified speed limit.

The speed can be controlled by increasing the height of different speed breakers located across the road. Here we use one 8051 micro controller and two optical sensors and motors. The firmware written in micro controller detects the speed of the vehicle by calculating using two parameters Time taken by the vehicle from sensor 1 to sensor 2

Distance between two sensors

The detected speed is compared with predefined speed in the program. If the detected speed is less than the predefined speed the motors position does not change. If the speed is greater than specified speed then motors make the speed breaker to rise slowly towards the top direction and stops at a specified height.

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AUTOMATIC RAILWAY GATE SYSTEM

The main aim of the project is to establish automatic railway gates in place of existing manual railway gates, to reduce maintenance expenditure, human mistakes, and accidents.

It is a low cost, maintenance free so that the concept is implemented by using an MCS 51 series micro controller. Here we established a railway gate moving towards top and bottom directions with the help of a 2V bi-directional linear DC motor, controlled by micro controller according to the firmware written in internal flash memory. Two sensors are attached to the railway gate to monitor whether the gate is properly closed or not, and to detect the person or vehicle movement while the gate is closing. Two more sensors are used to detect train movements i.e., entering and leaving. The intelligent firmware detects the train entry near by the railway gate with the help of entry sensor, and then the railway gate starts moving towards the downward direction. The motor stops rotating if any obstructions occurred during this operation. If the gate is closed in a specified time the controller allows the train to move on the track; otherwise the controller reduces the speed

of train by putting appropriate control signals on the track until the gate is closed. Finally, the gate is not closed if the train is near by the gate the controller stops the train by putting appropriate control signals on the track until the gate is closed. The gate automatically moves towards upward direction after leaving the train. It can be detected by leaving sensor. With the help of this control system, we can avoid accidents that occur at railway gates, human mistakes, and high maintenance of the control operation. This project was implemented by using 8051 micro controllers. The programs were written in assembly language.

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SOLAR PANEL CONTROL

The Main objective of the project is to control the solar panel movement according to the movement of sun. It is useful to produce the maximum energy from the solar panel according to the tangential light rays focused on the solar cell. For the purpose of practical demonstration we have constructed solar panel by using LDR's sun is nothing but the laser light.

The project is designed with Micro Controller 8051 and motor, motor driven circuits, LDR's and voltage comparators. The solar panel attached to the linear motor rotating towards the forward directions and reverse directions. There are two limit switches attached to the motor to restrict the rotation for 270°.

Initially the program written in micro controller scans for the maximum light intensity focused on the solar panel then stop's rotation. When the light intensity is decreased again it looks for maximum light intensity and moving in incrementing direction. Again it stops rotation at maximum value. The rotating direction may be clockwise or anticlockwise.

All LDR's, limit switches are connected to the input port, motor is connected to output port of Micro Controller.

It is a useful project for the general public to rotate the solar panel in the direction of sun.

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SECURITY SYSTEMS

This project presents Micro controller based Electronic Security System. This security system is designed to inform the user(s) by Phone in any case of unsecurable situation in his home / office wherever the equipment is installed. This equipment has magnetic sensors at every ventilation i.e. doors, windows etc. which will be a closed circuit.

The magnetic sensors are in contact when the doors are closed at that makes the circuit closed. And if the doors are opened, the circuit breaks and the home lights get switched on. The micro controller waits for the seconds of time specified. In unsecurable situations the micro controller Calls the three specified phone numbers through your landline phone connection and at the same time a loud buzzer sounds at 1000 watts PMPO of power continuously until the system is switched off with a key which is provided only with the product. This equipment is designed by using micro controller to give maximum security and digital communication systems as well as manual buzzer indication. This equipment works on automatic rechargeable battery during power failures.

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PC TO PC COMMUNICATION (IR BASED)

The main objective of the project is to transfer data between two computers using infrared media includes copying, deleting, files and etc.,

The programs are written in C / C++, VB, Q-Basic or any another language in Dos or Windows environment. Here, we require two computers one is meant for server and another one is client. There is an option in software to select one of the computers as a server and another one is for client. We have established a bi-directional communication between two computers for transmitting / receiving data. Here, the transmitted / received data is dumped into the serial port (RS 232c) by using programs written in the PC. Again the serial data RS 232c levels converted into TTL levels by using max232 chip. The TTL level bits (0,1) are given to input of infrared transmitter, again it converts 35Khz infrared frequency at bit 1 and 0Hz at bit 0. The transmitter signal received at the other end by using infrared receiver again it converts into bit 0, bit 1. The 0 and 1s are converted into RS 232c levels by using max232 chip. These RS232c levels are dumped into the serial port of the other computer.

We have written a bi-directional communication protocol in our software for exchanging data between two computers includes error corrections techniques like check sum, parity and etc.,

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REAL TIME SHEDULER

The project based on MCS 51 series micro controller, RTC, EEPROM to control 'N' no. of electrical appliances according to time schedule program in the EEPROM. Here we have used 16 x 2 dot matrix LCD display to display the present time and date. The front panel keyboard is used to set time / date and schedule programming. Each module can be programmed for 10 ON / OFF intervals at any specified time to ON / OFF state, for the practical purpose we have established 4 channels / outlets each 10 intervals (ON/OFF). The program is written in micro controller for reading, writing, displaying time and date from RTC, EEPROM. The internal RTC continues to run during power fail cases with help of 3.6v Ni-Cd rechargeable battery.

We have established a synchronous serial communication to read / write data from EEPROM and RTC. The extension port is available to extend no. of devices. The program schedule can be programmed according to week / date.

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REMOTE SWITCHING - USING TELEPHONE LINES

The main objective of the project is to control different electrical appliances/devices at remote area by using telephone line. Here the module at remote location is connected to the telephone line. Different devices are connected to the module. Here one can control all devices at remote area by means of simple dial to remote phone number using landline or mobile (GSM, CDMA) with DTMF tone transmission facility available. After dialing wait for pre-programmed rings then actuate the module through security password subsequently ON/OFF codes for different devices. We provided an acknowledgment signal from the remote area to dialed area.

The project is constructed with MCS 51 series micro controller, DTMF decoder, Relay, Power supply and etc.. The program is written in micro controller to count rings, read DTMF data from the telephone line, operates ON/OFF relays according to code received from DTMF. The DTMF decoder converts phone frequency to corresponding BCD code. In DTMF standards each switch on telephone keypad has different DTMF frequency.

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AUTO TIMER

The main aim of the project is to ring bells of schools/colleges/companies etc., according to the time schedule programmed in that timer. Here the schedule called as hours, minutes duration of bell are programmed through front panel keyboard. We have 20 intervals per day with variable duration and there is one more option, according to week the schedule can be altered. One AC outlet is provided at the output of timer to connect any kind of module that is connected. The project is constructed with MCS 51 series micro controller, RTC, Relays, EEPROM, Power supply and etc., The RTC has battery backup to run time and date during power fail cases. The program is written in assembly to read the data from RTC then compared with schedule written in EEPROM. The bell is at ON state for a specific period (Programmable) when both the data's are equal. We have established a bi-directional synchronous serial communication to read/write data from RTC and EEPROM.

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PC TO PC COMMUNICATION (FSK/ASK BASED)

The main objective of the project is to transfer data between two computers using FSK/ASK includes copying, deleting, files and etc.,

The programs are written in C / C++, VB, Q-Basic or any another language in Dos or Windows environment. Here, we required two computers one is meant for server and another one is client. There is an option in software to select one of the computers as a server and another one is for client. We have established a bi-directional communication between two computers for transmitting / receiving data. Here, the transmitted / received data is dumped into the serial port (RS 232c) by using programs written in the PC. Again the serial data RS 232c levels converted into TTL levels by using max232 chip. The TTL level bits (0,1) are given to input of FSK/ASK transmitter, again it converts 400Mhz frequency at bit 1 and 0Hz at bit 0. The transmitter signal received at the other end by using FSK/ASK receiver again it converts into bit 0, bit 1. The 0s and 1s are converted into RS 232c levels by using max232 chip. These RS232c levels are dumped into the serial port of the other computer.

We have written a bi-directional communication protocol in our software for exchanging data between two computers includes error corrections techniques like check sum, parity and etc.,

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PC INTERFACE ON/OFF CONTROLS

The main objective of the project is to reveal about the infrared communication between PC and device via asynchronous serial communication.

Here we have selected four different 230V AC operated devices controlled by a PC. The PC Remote is called as host and receiver module is called as device. The entire project is designed using two micro controllers.

We establish a bi-directional communication between PC and device via synchronous serial communication using IR medium. The different AC operated devices are connected to simple ON/OFF relays. The host contains modules: RS 232 converter and IR transmitter connected to the serial port of PC. The software written in PC to transmit ON/OFF codes to the device in anyone of the high level languages like C, C++, VB, Q-BASIC etc.,

The device consists of three sections: IR receiver, micro controller section, and relay unit. The device receives communication code from host, accordingly ON/OFF control is performed and the device is operated on +5V, 12V power supply taken from AC mains. The acknowledgment signal in the form of code is retransmitted to the PC.

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FLASH MICRO CONTROLLER PROGRAMMER KIT (89C51/52)

The main objective of the project is to read, write, erase the content of Flash memory located inside the micro controller chip (89C51/52).

It is useful project to Designer / R&D Departments / Training Institutions / Colleges where applications are based on MCS51 series micro controllers. Here, the module designed with micro controller reads the data from the serial port of PC then writes the same information into the micro controller kept in the 40pin ZIF Socket. On request it reads the information from the external micro controller and send it to the PC. The erase option is available to erase entire flash of micro controller.

Here the bi-directional protocol written in both PC and device to transfer the hexadecimal codes for reading, writing and erasing the micro controller's flash ROM.

The assembly program is written in micro controller to establish asynchronous serial communication with PC. The programs in PC side written in anyone of the high level languages to transfer the file from hard disk / floppy disk to the device subsequently the same file is transferred to the external micro controller kept in ZIF Socket module. The content of the micro controller can read and converted into binary file subsequently put it in hard disk of PC vice versa.

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FLASH MICRO CONTROLLER PROGRAMMER KIT (89C2051)

The main objective of the project is to read, write, erase the content of Flash memory located inside the micro controller chip (89C2051).

It is useful project to Designer / R&D Departments / Training Institutions / Colleges were applications are based on MCS51 series micro controllers. Here, the module designed with micro controller reads the data from the serial port of PC then writes the same information into the micro controller kept in the 20pin ZIF Socket. On request it reads the information from the external micro controller and send it to the PC. The erase option is available to erase entire flash of micro controller.

Here the bi-directional protocol written in both PC and device to transfer the hexadecimal codes for reading, writing and erasing the micro controller's flash ROM.

The assembly program is written in micro controller to establish asynchronous serial communication with PC. The programs in PC side written in anyone of the high level languages to transfer the file from hard disk / floppy disk to the device subsequently the same file is transferred to the external micro controller kept in ZIF Socket module. The content of the micro controller can read and converted into binary file subsequently put it in hard disk of PC vice versa.

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Satellite Signal Tracking System

The Main objective of the project is to control the Satellite Dish Antenna movement according to the orbit of Satellite. It is useful to produce the maximum signal strength from the Satellite. For the purpose of practical demonstration we have constructed Dish Antenna by using LDR's and substituted satellite with a laser light so that signal strength will be measured in terms of light intensity

The project is designed with Micro Controller 8051 and 2 stepper motors, motor driven circuits, LDR's and voltage comparators. The Dish Antenna attached to the linear motor rotating towards the forward directions and reverse directions. Out of the two motors one motor moves in horizontal direction and another motor moves in vertical direction. There are two limit switches attached to the motor to restrict the rotation for 270°.

Initially the program written in micro controller scans for the maximum light intensity (maximum signal strength) focused on the Dish Antenna then stop's rotation. When the light intensity is decreased again it looks for maximum light intensity and moving in incrementing direction. Again it stops rotation at maximum value. The rotating direction may be clockwise or anticlockwise.

All LDR's, limit switches are connected to the input port, motor is connected to output port of Micro Controller.

It is an useful project to rotate the Dish Antenna in the direction of satellite.

DC series motor speed control using PWM inverter technique

The objective of the project is to control the speed of DC series motor by using PWM technique. The project basically consists of micro controller MCS 51 series 8051 and motor driver, key pad, LCD display and rotation feed back sensor (optocoupler). The program is written in micro controller to take the input values from the user, then rotates the motor by placing 50% duty cycle pulse on the motor. The motor is rotated at X RPM speed, can be detected by using feed back sensor and micro controller. If the speed is above the specified speed then the micro controller continuously reduces the duty cycle till the speed comes to a predetermined level. If the detected speed is less than the pre determined speed then the micro controller continuously increases the duty cycle till the determined level. The micro controller keeps on tracking the determined speed by varying duty cycle in a closed loop control system.

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DIGITAL BACKUP MAILER USING MICRO CONTROLLER

The aim of the project is to send information from one point to many places. Where the information is needed the main moto of concept is server node concept between display PC micro controller based storage devices.

The receiver module is constructing with 8051 micro controller and 89C52 micro controller 62256 static RAM, 16X2 dot matrix displays, scan key board [4X4]. We have develop two modules one is for lecturers and another one is for students. As a receiver here the transmitter is PC the software written in PC transmitters the appropriate data to the relevant module.

The student module is not protected from passwords where as lecturers module protected from their individual passwords.

The static RAM has battery backup in case of power failure. The module has capability of storing 32 KB information. Each message has 256 bytes maximum of 128 messages. The data can be deleted on client request.

The modules are connected to PC via RS 232 interface, bidirectional protocol is written for data exchanging between PC and module. The assembling programs are written in micro controller, VB programs are written in PC.

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Over current protection of induction motor using micro controller

The main objective of project is to protect DC induction motor against over load, over voltage, under voltage, high temperature using micro controller. The project is constructed with 8051 micro controller, 0809 8 channel analog to digital converter, current transformer, voltage transformer, thermal sensor, comparator logics, LCD (2X16) and key pad. The software written in micro controller for the purpose of taking initial values from the user (minimum, maximum limits) and reads the above said information then subsequently compares with the preloaded information. If the information is within the specified limits the IM operates continuously, if any thing goes wrong it gives the alarm for a period of specified time then automatically cut off the power of IM. Again the motor turns on when all values comes to a specified limit. The delay is provided between off and on states of IM. Future expansion; if needed the module can be connected to PC for future evaluation of proper function of DC induction motor.

PC BASED REMOTE CONTROL STEPPER MOTOR

The objective of the project is to rotate forward, reverse directions of a stepper motor, controlling the rotating angle of stepper motor using micro controller and PC via wireless link. The stepper motor of step angle 1.5° can be rotated in forward, reverse directions according to the control point at PC the project is constructed by 8051 micro controller stepper motor, stepper motor driver, IR transmitter, receiver. We have written a communication protocol between stepper motor and PC for the purpose of rotating stepper motor via RS 232 link the stepper motor module receiver rotating direction, number of rotations from the PC, according to that it rotates. It is useful in automation plants where more accuracy is needed for the different applications like mounting, packaging, bottling, CNC's etc.

Remote power monitoring system using micro controller

The main object of the project is to verify monitoring the energy consumed by different organizations, household etc from the centrally located point. The central office is having a PC connected to the different energy meters fixed at different organizations wireless link. The energy meter connected at the consumer point continuously reads the power data and sends it to the PC via infra red wireless link. The project is constructed with the popular micro controller MC551 series 8051 micro controller, power measurement IC, voltage, current transformers and IR transmitter, IR receiver. The program written in micro controller to read and transmit the power data to the PC via IR link on request. The Pc can be connected to number of users with their unique ID number. Initially the PC transmits the ID code to the energy meters then the corresponding energy meter transmits the energy information to the PC with the help of this centrally we can monitor energy consumed by different consumes and useful for analyzing unauthorized usage. The software is written in PC for sending request to the energy meter and receiving the energy data from consumer point.

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VEHICLE TRACER BY USING RF TAG & MICRO CONTROLLER

The objective of the project is to protect the vehicles from thieves. It is useful project for the public where highly security is needed.

The project is constructed with the

8051 micro controller

IR transmitter, IR receiver

Max 232 IC,

RF receiver U2270B,

TK 5530 Compatible transponder

The project is implemented for cars, heavy vehicles by using micro controller 8051 and RF ID tags attached to the vehicle in place of engine number. The car engine automatically stops while pressing IR remote held at the car owner, it is one way of prevention. If it is not in the range the number can be transmitted to different tollgates from the police station. If the car is passing through the tollgate the RF reader established at the tollgate reads the engine number and compares with the data bank and gives the intimation signal in the form of buzzer, red light and automatically closes the gate. Here the data transmission module is nothing but PC located at police station. The receiver module is RF ID receiver at tollgate. The IR can be extended to GSM if needed for the practical implementation in market.

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WIRELESS 4 CHANNEL TELEMETRY

The objective of the project is to measure different process parameters like temperature, voltage, current, frequency of an electricity generation plant from a distance via IR link.

The project is constructed with a popular controller 8051, IR transmitter, IR receivers different sensors and DS 1620 temperature processor and 8 channel A/D converter 0809 ADC. The main motto of the temperature measurement done by the temperature processor DS 1620 is it measures temperature -55°C to $+125^{\circ}\text{C}$ with an accuracy of 0.5°C without help of any temperature sensor. The transmitter end of telemetry reads the different process parameters and transmits via IR link with their check sums. The program written in receiver link reads the relevant data from the transmitter and display on 16X2 LCD dot matrix display. For the purpose of practical demonstration we have taken IR link for easy construction it can be extended to FSK, GSM for longer distances. In case the project can be extended to communicate with PC for the data storage like time, dates etc. we have written a protocol between transmitter and receiver for data exchanging.

WIRELESS PRINTER

The objective of the project is to get the information from the PC and give it to the printer via IR link. We have used two Micro controllers one is at transmission end of PC another one is at reception end.

The PC RS-232 port is connected to the transmitter module, further converted into IR serial data. The receiver modules read the information via IR link serial standards and convert them into EPP (Enhanced Parallel Port) IEEE standards. All control signals in parallel port are generated by the receiver module. We have written a communication protocol between transmitter and receiver data exchange.

The project is constructed with 89C2051 Micro controller, Max 232C IC, IR transmitter, IR receiver.

SECURITY GUARD MONITORING USING MICRO CONTROLLER

The objective of the project is to check whether the security guard of a particular organization is awake or not. The project gives the complete working report of a security guard from the sleep at regular in predefined intervals. The project is constructed with 8051 micro controller, RPC, 32K bytes S – RAM, MAX 232, serial port driver, 16/2 LCD dot matrix display, Buzzer driver. The program written in assembly for reading the data from RPC, sensors switch, writing data into RAM, communication protocol for communicating with PC. Initially, the module gives the beep for one minute during this time the security guard stops the beep by pressing the sensor switch. The beep comes in predefined regular intervals. If the above task does not happen the micro controller reads the data from RPC (date, time and enters into the RAM as a missed interleaves). The RAM has battery backup for protecting data in case of power fail. The information can be transferred on to the paper by transferring data from module to system via RS 232 link.

REAL TIME SCHEDULER CUM SECURITY SYSTEM WITH AUTO DIALER

The project is based on 89C52 micro controller, provides security against theft, fire, smoke, heat along with auto dialer. We are adding one more module called as real time scheduler provides scheduling of different electrical appliances according to time schedule loaded in the module.

1. SECURITY MODULE:-

The program written in micro controller detects the above said parameters with help of different sensors attached to the micro controller. If any problem occurs the micro controller sets the high power siren, and automatically dials the preloaded numbers and transmits the prerecorded voice information like this it is capable of dialing up to four land line numbers and cell numbers. The sensing aspect includes door open, close, vibration, passive infrared etc.

2. REAL TIME SCHEDULER:-

It automatically reads the time and dates from RTC (Real Time Clock) and compares with the preloaded scheduling time according to that it controls different electrical appliances.

LIST OF COMPONENTS:-

1. 89C52 Micro Controller
2. 93C66 EEPROM
3. BT91531 DTMF ENCODER
4. 4052 MUX
5. 4N35 Optocoupler
6. LN393 Comparator etc
7. 16X2 Dot Matrix Display
8. 7805 IC

FSK BASED SMART HOME

OBJECTIVE: To control different electrical appliances by using PC and FSK transmission module.

The project is basically constructed with 8051 micro controller and FSK transmission and reception module. The transmitter is connected to RS232 port. The software is written in PC for the purpose of appropriate code transmission for a relevant switch ON/OFF operations.

The transmitted code from PC is received by FSK receiver module. Subsequently receiver module decodes the transmitted code for ON/OFF operation of a particular module. We have established our own customized communication protocol between PC and receiver module. The program is written in VB at PC side and assembly at micro controller receiver module. For the practical demonstration, the project is designed for four different modules.

HARDWARE USED:

1. RS232 to TTL converter
2. FSK transmitter module
3. FSK receiver module
4. 89C51 ATMEL micro controller
5. Driver transistors
6. Relays

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CONTINUOUS DATA BACKUP AND CONTROL DRIVE FOR TEMPERATURE WITH PC INTERFACING

The objective of the project is to read the temperature from DS 1620 temperature processor with resolution of 0.5°C ranging from -55° C to 125° C. the data from the chip is stored in local SRAM along with time and date. The time and date are produced by Real Time Clock.

The project is implemented with 89C52 micro controller for reading temperature data store it in static RAM 32KB (62256) as a data record along with time and date from DS 1302 RTC. The RAM has a 3.64 picker cadmium battery backup for retaining data during power failure cases. The module can acts as a stand alone module (or) connect to the PC for downloading data via RS232 link. We have provided a closed loop; control system for providing constant temperature in between two limits. The communication protocol is written for data exchanging between module and PC. We maintained temperature accuracy of 0.5° C including negative temperatures here we have not used any kind of temperature sensors like thermistors etc.

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FAULT ANALYZER USING MICRO CONTROLLER AND PC WITH AREA MAP

The objective of the project is to analyze and find the transmission line faults of a power distribution line like power wire cuts. We have implemented this project based on MCS 51 series micro controller. The assembly program is written for sensing distribution lines power status at different locations. It transmits information to micro controller via wire line or wire less line.

The micro controller displays the area information in the 16X2 dot matrix display attached to the micro controller. The same information is transmitted to the PC via RS232 link. We have provided the control system to power cut for the safety purposes of the public. If any problem occurred in the line it automatically detects and give a continuous buzzer, displays the information, transmits the information to PC, after 2 seconds the power goes off in the transmission line.

The project can be extended by placing GSM transmitter set at different poles of transmission line. Bidirectional protocol is established for exchanging data between micro controller and PC.

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UNIT COMMITMENT USING 8051 MICRO CONTROLLER

The objective of this project is to analyze in the method of dynamic programming sequential control for different generators located at the power stations. It is a useful project where the generation is more than the requirement. It is also a useful project for maintaining proper efficiency, proper rest time of a particular generator where the consumption is more than the production. It also provides an overloads trip of protection for generators where the requirement is more than the production.

The project is constructed with 8051 micro controller, 0809ADC, current transformers, and relays (in place of generators). The source is taken from 230V AC, single phase, 50Hz line. The program written in micro controller detects the load according to that ON/OFF of a particular generator takes place.

If the load is more than the overall capacity of the plant given the buzzer for a period of 5 seconds than automatically enter into the power OFF condition.

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HIGHER KVA TRANSFORMER PROTECTOR AGAINST HIGH VOLTAGE, LOW FREQUENCY, HIGH TEMPERATURE, HIGH LOAD CURRENT WITH DATA ACQUISITION

The project is basically designed for protecting high power transformer against high voltage, high current , low frequency , high temperature. The project includes Data Acquisition system for future analysis. The project is designed with popular Micro Controller 89c52 (MCS51 series) , ADC 0809, Comparators, etc..

The program written in Micro Controller reads the Voltage Data, Current Data , Frequency, High temperature from different sensors and compares with predefined levels, High Voltage limit, Low frequency, High current limit, High Temperature limit . Subsequently, gives the alarm and automatically disconnects the transformer from the power.

The same data is transferred to the PC, RS232 Link. The program written in PC stores the same data in Hard disk for Future analysis. The project can be extended to sense internal arcing, viscosity of transformer oil , transformer vibration, etc..

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Protection for ATM Systems with Finger Print Identification Technology

Concept of the project is to restrict the unauthorized person enter into the ATM Counters with help of Finger Print Identification. The finger print is registered in the Net based Server, The reader & Access Control is installed at Main Door of ATM counter. When the person comes to the ATM Counter the door is in closed position. If he would like to enter into the counter initially he has to place the finger at the finger print sensor of the reader. So the reader transmits the template via TCP/IP the server activates the reader and automatically opens the door only for valid Users. If it is not valid, it gives an alarm after three successive trails. Due to this we can avoid entry of unauthorized persons.

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Attendance Marker using Finger Print Sensor

The objective of the Project is to mark Attendance based on finger print recognition. We developed finger print standalone attendance reader using Microprocessor, Finger Print Sensor, and Flash ROM. Initially the Student/Employee has to register their finger print templates in the reader. The Reader can handle upto 1500 Users & 50000 Transactions. So the Stored data is transmitted to PC on request via Network Interface Port/Serial RS-232 Port. The software is written in Visual Basic at the System Side for storing the details of Employee/Student Data. The software has got many facilities like Attendance, Fee Particulars, Progress Reports for Students. Attendance, Payroll, Leaves Management for Employees. We have added an Auto SMS Facility in the software for sending SMS to the relevant Persons on request made by the user.

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Electronic Safety Assistance for Blind

The Project aims at Providing Assistance for the Blind People against obstructions. The Blind People has to wear the equipment; the equipment transmits IR Communication Code into the Free Space. The reflected IR Communication Code received by the Same Micro-controller. The reflection takes place only any obstruction near by the device. If the code is similar to the transmitted code the obstruction is confirmed & it gives a buzzer at the equipment. The equipment is constructed with popular Micro-Controller MCS51 Series, 89C52 & IR Transmitters, Receivers etc. We have implemented bi-directional protocol for IR Transmissions & Receptions via Serial Port available with the Micro-Controller.

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TURBIDITY CONTROL BASED ON MICROCONTROLLER

Abstract:

The main objective of this project is to Control the turbidity of water by using a Closed Loop Control System Implementation through micro controller.

In this aspect we have to read the turbidity of water through sensor and Analog to Digital Converter. The micro controller read the data from Analog to Digital Converter then subsequently made a process related to turbidity. If the turbidity is greater than predefined level, then automatic control system activate the valve for alum solution in proportion to the turbidity. If the turbidity is more and more, then the more alum solution is added in water. If it is left so, automatically the quantity reduced by micro controller.

The project is designed with AT89C52 micro controller, Analog to Digital converter, 16*2.matrix display, Turbidity sensor and electromechanical valve.

An Assembly level program is burn in to the micro controller to maintain the total operation so that same values we can transfer to PC via RS232 link for the future analysis.

Applications:

This project is mainly useful for Water Purification Plant, Chemical plants and Temperature room control. Any other closed loop control system all applications possible for by changing sensor modules.

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STAFF IDENTIFICATION AND DETAILS USING RFID

The proposed project work aims at the automation in identification of staff, maintaining their bio-data and attendance which is one of the important tasks in college.

In earlier days, attendance is taken manually and entered to the computer by a programmer. But in case of large number it becomes difficult and clumsy. So to automate it, RFID's are used

The proposed project is designed to develop a record which maintains staff profile relating their personal and professional details, to identify a person and to mark his/her attendance along with timing information automatically, there by reducing the manual effort to a considerable extent.

Now a day as employment rate has been increased to a greater extent, it has become a big subject for maintaining their details and identifying them in marking attendance. Hence the need has come out, thus this project work has taken up which serves the purpose of automation. By detecting RFID tag, the RF module marks the attendance automatically.

This project work is basically related to radio frequency communication. As we know the modern communication plays a dominant role in the communication revolution. The proposed project work is aimed to use radio frequency communication between RFID tag and RFID module where the identification is performed. Hence this project work is divided into two unit's i.e.,

1. RF mode:- A communication between RF tag, RF module and RAM chip.
- 2 .P.C mode:- A communication between RAM chip and P.C via Micro controller.

With the advancement of technology, particularly in the field of computers, all the activities in our day to day living have become a part of information and we find computers at each and every application. Thus, the trend is directing towards computer based project works. To identify and display we have used both software and firmware. In order to provide interface between P.C and RFID we use software, it deals with "Visual Basics" using 'C' language is used. In order to program microcontroller assembly language is used.

This is innovative project work introduced in the field of wireless communication. Radio Frequency communication is utilized in this project work to make a link between tag and the reader. The reader part may be located at any of the staff rooms and the monitoring is done by the head of the department.

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This project throws more exposure on the radio frequency communication. As we know today, the modern communication plays a dominant role in modern civilization. Now a days, with the advancement of the technology particularly in the field of wireless communication, of day to day living have become a part of information and we find wireless communication system at many applications.

To detect the RFID tags, a software program is developed in a micro controller chip such that the micro controller along with the RF module detects the RFID tags. Whenever the RF tag comes into the vicinity of the RF reader, the micro controller grabs the 10 digit Hexadecimal code stored in the tag and sends it to the RAM chip.

The main advantage of implementing staff identification using micro controller is that the digital output can be directly connected to any P.C. and can monitor it continuously.

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1.Over Voltage & under voltage Protection using ADC & Microcontroller

The project is basically designed for low voltage & high voltage protection using Microcontroller for higher KVA transformers, motors, generators & other electrical equipments.

The project is containing one Microcontroller, ADC, 555 timer, Voltage transformer & one relay. The Control device voltage is applied to the voltage transformer. The transformer reduces to 6volts A.C subsequently converts 5v D.C by using bridge rectifier & potential divider. The 5V D.C is given to ADC for full-scale reading of 255V.The ADC converts 5V D.C into 8-bit digital data. The Microcontroller reads the voltage data through port1 analysis with the predefined levels. If the voltage is there with in the limits the relay is at on condition. If the voltage is beyond the predetermined limits gives an error for a period of 5sec in the form of beeps. Subsequently enters into the trip of state. If the voltage is corrected with in the specified 5sec , the relay is at normal state. The LCD attached to the Microcontroller displays the limit values & measured voltage.

H/W Components:

AT89C52
11.0592 MHZ
ADC (0809)
555 timer
LCD (16X2)
Voltage Transformer
Regulator (7805)

S/W used:

Assembly language

2.Over power protection using ADC & Micro controller

The objective of the project is to protect different devices like higher KVA transformers, motors, generators & other electrical equipments etc against over load or over power using Microcontroller & ADC.

We have to use the popular Microcontroller 8051 or 89c51, ADC 0808, 555 timer, voltage transformer & current transformer. The O/P of voltage transformer & current transformer converts into D.C voltages proportional to line I/P's are given to Two channels of ADC. The analog voltage is converted into 8-bit digital data by using ADC, the channels can be selected through 3-bit channel selection. The converted data is connected to the I/P port of the Microcontroller reads & analysis with predefined levels. The measured load is within the limits the relay operates in normal mode. The measured value is beyond the limits it gives beep for 3 to 4 secs. If the error is corrected within the period, the relay is in normal mode if not, enters into the trip of mode. The measured values & limits are displayed on the 16X2 dotmatrix LCD display connected to the Port 0 of Microcontroller. It is very flexible to vary the limit through S/W & connected to the P.C for the data acquisition.

H/W Components:

AT89c52
11.0592 MHZ crystal
ADC (0809)
555 timer
LCD (16X2)
Voltage Transformer
Current Transformer
Regulator (7805)
Relay

S/W used:

Assembly Language.

3.Temperature protection using ADC & Micro controller

The objective of the project is to protect against high temperatures for different devices like transformers, Motors, generators & other electrical equipments at different areas.

This is designed with Microcontroller, 0809 ADC, 555 timer, thermister(NTC - -ve temp Quotient) , LCD display, Voltage regulator & control relay. Here the temperature sensor thermister is connected to protected device reduces the resistance w.r.t increasing temperature. The thermister is connected in potential divider n/w to convert resistance into voltage. The converted voltage is propotional to the temperature connected to the I/P of ADC. The 8-bit ADC converts voltage into 8-bit digital data. The frequency at the O/P of 555 decides the conversion time of ADC. The program written in Microcontroller reads digital data through Port 1 of Microcontroller compares with the upper limit, if the temp., is greater than the limit it gives error beeps for a predetermined time, if the error is corrected with in the time ,it enters into the normal state ,otherwise the relay enters into the trip of state. It is very convenient project to extend communication with PC's data transmission through GSM etc.

H/W Components:

AT89c52
11.0592MHZ crystal
ADC (0809)
555 timer
LCD (16X2)
Power Transformer
Thermister(NTC)
Regulator (7805)
Relay

S/W used:

Assembly Language

4.Frequency protection using ADC & Micro controller

The objective of the project to protect the capacitive & inductive modes against high & low frequencies.

The project is designed with Microcontroller, Comparator, Relay & LCD. The frequency is given to the sin wave to square wave converter to step down transformer. The sin wave to square wave converter initially converts bi-directional A.C into Uni directional A.C. Uni directional A.C is given to comparator via potential divider n/w. The comparator gives a square wave O/P connected to the I/P ports of Microcontroller. The program written in Microcontroller reads the data & increments the counter for a period of 1sec. The read value compared with the limit values. If the read value beyond the limit gives an error signal in the form of beeps for predetermined time. If the error is not correct than the relay enters in to the trip of state. The O/P displayed on LCD. Expansion can be done to transmit the data through PC or any other remote areas.

H/W Components:

AT89c52
11.0592MHz Crystal
LCD (16X2)
Relays
Voltage Comparator
Step down transformer etc.,

S/W used:

Assembly Language

5.Line fault analyzer using ADC & Micro controller

The main objective of project is to find out the line breaks through out distribution line using Micro Controller & PC.

This Project can be implemented with or without help of PC, in place of PC we can put LCD display.

For the future expansion, here w

e are implementing the project with MC on PC we have. This Project mainly consists of different Sensors located at different electric poles of distribution line. So all the sensors are feeded to the sensor reading logic. The Output of the Sensor reading logic attached to the Micro Controller. The Micro Controller reads each and every sensor & gives the data to the display or PC.

In addition to this, we kept one alarm to indicate the line breaks. The program written in Micro Controller (89C51), to transfer the data from sensors to PC. The communication protocol written in between PC & Micro Controller for reading Sensors data. The fault finding data can be stored in the PC for the future evaluation. The automatic control System also can be implemented with the help of this, whenever the Problem occurred in the distribution line. The Control System enters in to the Power Off state when Problem occurred in the distribution line. It is very useful project to avoid accidents in distribution line due to line breaks

6.Stepper motor direction & Speed control using Micro controller

The objective of the project is to control the speed& direction of stepper motor by using Micro controller.

The project is designed with popular MCS51 series of Micro controller 89c52,ULN2003 Darlington Pair, transistor array, Stepper motor & 12V, 5V regulator power supply. In this the program is written in the Micro controller rotate stepper motor in two directions clockwise & anti-clockwise by pressing two digital switches attached to the I/P port of Micro controller. The 3rd & 4th switches attached to the Micro controller port regulates the speed in a specified direction. The speed is controlled by managing time delay b/w two subsequent steps. The 12v power supply is used for motor & motor driven sections. 5v is ment for Micro controller.

H/W Components:

AT89c52
ULN 2003
11.0592MHz crystal
Regulator (7805)
Regulator (7812)
Transformer
Digital Switches

S/W used:

Assembly Language

7.A.C voltage regulator using Micro controller

The project is basically designed with Micro controller, ADC & on/off relays. The project maintains constant o/p respective of line & load variations. Here we r using voltage transformer to sense the o/p voltages. If the o/p voltage is greater than the predefined level the downward relay is in on state & the remaining two are in off state. If the o/p voltage is less than the predefined level, the up word relay is in on state, then the remaining two are it off state. If there is no change in the middle relay is at on state. The program is written in Micro controller , it reads the A.C voltage ,according to that the compensation relay operates in bug & boost modes. If the measured voltage is at beyond the limits, the o/p enters into the trip of state.

H/W:

AT89c52 micro controller

ADC

Relays

Voltage regulator

Tapping transformer

S/W:

Assembly Language

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8. ON/OFF SWITCH CONTROL USING MICRO-CONTROLLERS (IR BASED)

The main objective of the project is to reveal about the infrared communication between two devices via asynchronous serial communication.

Here we have selected four different 230V AC operated devices controlled by a handheld remote controller. Remote is called as host and receiver module is called as device. The entire project is designed using two micro controllers.

89C51 - located inside the device and

89C2051 - located in the host

We establish a bi-directional communication between host and device via synchronous serial communication using IR medium. The different AC operated devices are connected to simple ON/OFF relays. The host contains three modules: keyboard, micro controller unit, and IR transmitter. The firmware written in micro controller scans for switch depression and transmits appropriate position to the device then waits for acknowledgement from the device.

The host is operated by battery i.e., 9V cell. The device consists of three sections: IR receiver, micro controller section, and relay unit. The device receives communication code from host, accordingly ON/OFF control is performed and the device is operated on +5V, 12V power supply taken from AC mains.

8.IR based on/off control (Triac based)

ON/OFF SWITCH CONTROL USING MICRO-CONTROLLERS (IR BASED)

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The host is operated by battery i.e., 9V cell. The device consists of three sections: IR receiver, micro controller section, and relay unit. The device receives communication code from host, accordingly ON/OFF control is performed and the device is operated on +5V, 12V power supply taken from AC mains.

10.Digital power saver time based

The objective of the project is to reduce power consumption up to 30% for domestic or commercial areas like street lights etc.

The project is constructed by Micro-controller, RTC, EEPROM & 3 relays. The program is written in micro controller reads the schedule from EEPROM & subsequently operates the channel relays. The Micro controller continuously reads the time information from RTC & compares with the schedule in EEPROM according to that 3 relays are operated.

We can program any time , any channel may off or on. For example 3 channels of street lights are at on state b/w 6.30 & 10PM, 2 channels are sufficient b/w 10PM & 12AM. One channel is enough b/w 1AM to 5AM. All channels are off at 5PM.

6PM – 10PM (All channels on)
10PM –12AM (One channel off, two channels on)
12 AM – 1AM (All channels on)
1AM – 5AM (One channel on, two channels off)
5AM – 6PM(All channels off)

This is a complete time oriented on/off's reflects at least 30% of power saving, compare with normal operations.

H/W:

AT 89c52 Micro controller
RTC
EEPROM
Power Regulators

S/W: Assembly Language

11.Digital Power saver Voltage based

The objective of the project is to save upto 30% of energy from the overall Consumption at domestic & commercial areas.

The project is designed with Micro controller, RTC, EEPROM etc. It is completely voltage based design adjusts o/p voltage according to the time b/w 6PM – 10PM maximum voltage is applied to the lights reflects more lighting, b/w 10 – 12 medium voltage is applied to the lights, 12 - 1 maximum voltage, 1-5 minimum voltage is applied to the load b/w 5AM – 6PM is at off state. The equipment can save upto 30% energy in the overall consumption. The percentage of saving can be increased by change program in EEPROM , time slots & voltage.

H/W:

AT89c52 Micro controller
RTC
EEPROM
Relays
Voltage regulator
Tapped voltage transformer

S/W:

Assembly Language

12.Transformer internal Arcing identification

The objective of the project is to identify the internal Arcing of higher KVA transformer coils, comparator.

The project is constructed with Micro controller, comparators, LDR etc. The LDR sensor is sealed & kept immersed in the transformer liquid. The LDR offers high resistance at lower intensity areas, reduces resistance with increase in light intensity. When any arcing occurs inside the transformer results reduction in the I/P voltage of comparator. The O/P of the comparator connected to the Micro controller detects intensity levels subsequently given an alarm & indicator. So the data can be transmitted to the P.C via serially if need.

H/W:

AT89c52 Micro controller
LDR
Comparator
Voltage regulator
Buzzer

S/W:

Assembly Language

13. Water tank Auto control:

The objective of the project is nothing but the level control of any liquid tanks.

The tank contains bottom & top sensors. One float is moving in b/w these two. These two sensors are connected to the Micro controller. The program written in Micro controller. Turn on the motor, if the liquid level is below the bottom sensor, again turns off the motor. If the liquid level reaches to the top sensor. Two sensors are attached for dry run & motor temperature. If any fault is occurred the motor turns off. Dry run & temperature protections are ment for protection against motor damage.

H/W:

AT89c52 Micro controller

Sensors

OPTO oscillator

Relay voltage regulators

S/W:

Assembly Language

14.Closed loop control system for voltage regulation (Micro controller)

The objective of the project is to control the O/P voltage of servo mechanism.

The Auto transformer is attached to the stepper motor rotates in forward & reverse directions. The O/P voltage is converted in to D.C Subsequently given it to the ADC. The digital data is read by the Micro controller analyzed with the limit values. The read value is greater than the upper limit, the motor starts rotate in reverse direction till the voltage level comes in b/w the limits. If the read voltage is less than the lower limit, the motor starts rotate in forward direction. Until the read voltage reaches in b/w the upper & lower limits. It is a more accurate than relays based voltage stabilization.

H/W:

AT89c52 Micro controller
Stepper motor
ULN 2003
Auto transformer / variac
Voltage regulator

S/W: Assembly Language

15.Anti collision System

The objective of the project is to stop the vehicle when any obstruction comes in front of the vehicle within a specified distance.

The project is having IR transmitter & receiver. The transmitter transmits 35KHZ IR frequency, if any obstruction is reflected, frequency received by the receiver. The o/p of the receiver read by the Micro controller then reduces the speed of motors subsequently rises the horn. If the obstruction is not eliminated then the horn & motor is automatically enters into the off state. Due to that the vehicle is stop. It is suitable for electrical bikes. If diesel, petrol bikes the equipment raises the alarm. According to the driver has to take necessary action.

H/W:

AT89c52 Micro controller
Linear motor
IR Transmitter
IR receiver

S/W:

Assembly Language.

17. UNIT COMMITMENT USING 8051 MICRO CONTROLLER

The objective of this project is to analyze in the method of dynamic programming sequential control for different generators located at the power stations. It is a useful project where the generation is more than the requirement. It is also a useful project for maintaining proper efficiency, proper rest time of a particular generator where the consumption is more than the production. It also provides an overloads trip of protection for generators where the requirement is more than the production.

The project is constructed with 8051 micro controller, 0809ADC, current transformers, and relays (in place of generators). The source is taken from 230V AC, single phase, 50Hz line. The program written in micro controller detects the load according to that ON/OFF of a particular generator takes place.

If the load is more than the overall capacity of the plant given the buzzer for a period of 5 seconds than automatically enter into the power OFF condition

1.Level Measurement using ADC and Micro controller.

The project is basically designed for measuring A.C load current through current transformer & ADC.

Here the Micro controller is used to read & display the load current value & controls higher cutoff. When the load current is greater than the specified limits. The current transformer converts the load current into A.C voltage subsequently converts into D.C. by using bridge rectifier. The D.C voltage is given to ADC that converts into digital data read by the Micro controller converts into decimal values through lookup table & displays on the 16X2 LCD dot matrix display. We used a relay for higher cutoff.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. ADC
4. 555 timer
5. LCD
6. Current transformer

S/W:

Assembly Language.

2.Speed Measurement using Micro controller and Optional encoder

The project is designed for measuring speed of any rotating device by using optical encoder & Micro controller.

The sensor (Optical encoder) is mechanically coupled to the rotating device. It rotates along with rotating device. The 'U' shaped opto coupler attached to the sensor disk raises square wave pulses due to light interruption. So, the generated square wave pulses attached to the Micro controller timer pin or any one of the port pin. The count number of pulses for a period of one second. The count is converted into decimal value & displays in the dot matrix LCD display. If the speed is greater than the specified limit it gives an error in the form of buzzer. It is useful project where the maximum limitation is needed. The project can be extended to maximum speed time recorder for the future analysis.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. LCD
4. Optical encoder

S/W:

Assembly Language.

3.Temperature Measurement using DS1620(Without Sensors)

The project is basically designed with the temperature processor DS 1620 & Micro controller. Here we r not using any sensor.

We are taking the temperature data from the temperature processor DS1620 8-pin IC. The manufacturer established this chip. The synchronous serial communication bus attached to the Micro controller. The Micro controller reads the temperature data through this bus & converts into degree centigrade subsequently displays on the LCD display. It is more accurate & error free IC with a resolution of 0.5 °c from -55°c to +125°c. We established a closed loop control system for upper & lower limit temperatures.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. LCD
4. DS1620 sensor
5. Max 232
6. DB 9 connector

S/W:

Assembly Language.

4.Passive infrared sensors for human body detection

The main aim of the project to detect the human body presence in a certain specified area.

Here the Micro controller reads data from designed passive infrared sensor & gives an alarm for a period of specified time. The infrared transistor detects the infrared rays emitted by the human body subsequently amplified by the op-amp converts into bit 0 or 1 by the comparator. The o/p of comparator connected to the Micro controller. The Micro controller gives an alarm after complete evaluations. So, the Micro controller avoids the wrong alarm by taking two or three readings from the PIR (Passive Infrared).

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. Passive infrared sensor
4. Infrared Transistor

S/W:

Assembly Language.

5.Vibration sensing (Piezo electric method)

It is piezo electric based vibration sensing using piezo electric crystal, Op-amp & comparator. It gives an alarm when any vibration occurred near by the sensor. The sensor converts an amplifies the vibrated signal & given to the Micro controller. The Micro controller gives an alarm in the form of buzzer. It is useful project where security is needed. The sensor is attached to the walls, slabs, safe lockers etc.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. buzzers
4. Piezo electric crystal,
5. Op-amp

S/W:

Assembly Language.

Siva Kameswara Rao

6.Wireless Keyboard using micro controller

The project is basically designed for converting a normal keyboard into a wireless infrared keyboard.

Here the keyboard is connected to the Micro controller transmission module. The micro controller in the transmission module reads scan codes via synchronous serial bus converts PS/2 (or) AT standards into ordinary 8-bit scan code. The 8-bit scan code is re-transmitted to the receiving module via IR transmitter. Here the data is in asynchronous format. The receiver modules attached to the P.C, receives asynchronous data converts into synchronous serial data & send it to the P.C.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. MAX 232
4. DB - 9 connector
5. IR pair

S/W:

Assembly Language

7. PC TO PC COMMUNICATION (IR BASED)

The main objective of the project is to transfer data between two computers using infrared media includes copying, deleting, files and etc.,

The programs are written in C / C++, VB, Q-Basic or any another language in Dos or Windows environment. Here, we require two computers one is meant for server and another one is client. There is an option in software to select one of the computers as a server and another one is for client. We have established a bi-directional communication between two computers for transmitting / receiving data. Here, the transmitted / received data is dumped into the serial port (RS 232c) by using programs written in the PC. Again the serial data RS 232c levels converted into TTL levels by using max232 chip. The TTL level bits (0,1) are given to input of infrared transmitter, again it converts 35Khz infrared frequency at bit 1 and 0Hz at bit 0. The transmitter signal received at the other end by using infrared receiver again it converts into bit 0, bit 1. The 0 and 1s are converted into RS 232c levels by using max232 chip. These RS232c levels are dumped into the serial port of the other computer.

We have written a bi-directional communication protocol in our software for exchanging data between two computers includes error corrections techniques like check sum, parity and etc.,

8.Speed and direction control of stepper motor (IR based & Remote)

The project is constructed with IR transmitter, IR receiver , Micro controller & stepper motor.

The IR transmitter module is attached to the P.C. serial port transmits a direction & speed, 8-bit code to the receiver module receives the code according to that it rotates stepper motor in forward direction & reverse directions. The asynchronous serial protocol is written in b/w transmitter & receiver for data exchange.

The assembly program is written in Micro controller rotating stepper motor & high - level language is used at P.C side. It is useful project for SCADA application.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. IR pair
4. Stepper motor
5. ULN 2003

S/W:

Assembly Language

9.RFID Proximity reader and Access control(Relay)

The project is basically designed with Micro controller, to read data from proximity card. The proximity card having 64 – bit Manchester code containing chip (TK5530) & RF antenna.

The reader module is having U2270 chip, Micro controller & antenna. Both antennas are transmitter as well as receivers. The RF ID reader module generates 125KHZ RF field. The antenna of card near by the reader module induces voltage for TK 5530. The card re-transmits the 64 – bit code through the same antenna in the form of RF modulated wave, the wave is received by the reader & Converts into ASCII code of 10-digit. The converted code is transmitted to the P.C via RS – 232 port.

Access control:

The RF reader is attached to the magnetic lock. The lock is connected to the door. The lock open or close depends on the signal given by the RF reader. The RF reader releases the lock only when valid code is received from the card.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. Proximity card
4. TK 5530
5. U2270

S/W:

Assembly Language

10.Smart card reader with access control / Without access control

It is the project is designed for reading the data from smart card via I²C bus & converts into a specified ASCII code & re-transmits the code through P.C via RS – 232 ports. It is a re – writable card, the reader can read, write, erase, the content of specified smart card. Here we have used SLE 4442 siemens 256 bytes storage card with protected security memory. The writing in the card is restricted only when valid password is entered. The password is stored in the protected area. It is not readable. If the wrong password is enter 3 times the code is blocked. Further it is not useful in the synchronous serial protocol is written b/w SLE 4442 & Micro controller.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. RS – 232
4. Smart Card
5. SLE 4442

S/W:

Assembly Language

11.Password security for door locks using micro controller & EEPROM

The project is basically designed for Micro controller, EEPROM, LCD display, Keyboard.

The matrix keyboard is connected to the Micro controller, takes the data user through these keyboard. The enter password is compares with digital data in the EEPROM. If both are equal, the door automatically opens otherwise it is locked. The Micro controller operates in two modes one small jumper is given in the circuit for the purpose of selecting password entry mode & general operation mode. The synchronous protocol is established between EEPROM & Micro controller for data exchange.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. EEPROM
4. LCD display
5. Keyboard

S/W:

Assembly Language

12.Sound intensity level detection using Micro controller

The project is designed with Micro controller, ADC, Op-amp, condenser mike & LCD display.

Here the mike is connected to the op-amp. The op-amp o/p is given to the ADC. The ADC converts analog voltage into digital data, the digital data is read by Micro controller & displays the value in the LCD. The displayed value is corresponding to the sound intensity level at the I/P of the mike. The sound intensity level is more than the predetermine level then give an alarm.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. ADC
4. LCD display
5. Op-amp
6. Condenser mike
7. 555 timer

S/W:

Assembly Language

13.Turbidity measurement

The turbidity measurement of water is possible with this instrument is designed with LED, Photo diode (or) LDR, ADC, LCD display.

The measuring liquid test tube is kept in b/w LDR & LED. The light focused by the LED is penetrating to liquid & focused on the LDR. The resistance of LDR proportional to the turbidity. The LDR is connected to the potential divider n/w. It converts resistance into voltage. The voltage is given to ADC & it converts digital data. The Micro controller reads the data & displays the value of turbidity of water in LCD display.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. ADC
4. LCD display
5. LED
6. LDR
- 7.555 timer

S/W:

Assembly Language

14. PC based smart home

The project module is connected to the P.C via RS – 232 port.

The high level language is written in PC to transfer the user request via RS – 232 port. The module reads the port according to that turns on / off appropriate relay. The relay is connected to the A.C 230V. I/P & O/P is given the A.C socket with help of this we can control different home appliances.

H/W:

Relay
Socket

S/W:

C language

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15.Traffic Signal lights using micro controller

The project is designed with Micro controller, ULN 2003, LED's.

Here we are established four road junction, each road is having three lights (red, green, yellow) Initially all red lights are on, the remaining all are off. After specified delay road no:1, green light is on & the remaining all red lights are on. Again after predetermined delay the road no:1, green lights off & yellow lights on. After 2 or 3 seconds the road no:1 comes red light, the road no:2 comes to the green light. At this time the remaining all at reds. We have established a switch for flashing yellow lights in the nights.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. ULN 2003
4. LED's

S/W:

Assembly Language

16. AUTOMATIC RAILWAY GATE SYSTEM

The main aim of the project is to establish automatic railway gates in place of existing manual railway gates, to reduce maintenance expenditure, human mistakes, and accidents.

It is a low cost, maintenance free so that the concept is implemented by using an MCS 51 series micro controller. Here we established a railway gate moving towards top and bottom directions with the help of a 2V bi-directional linear DC motor, controlled by micro controller according to the firmware written in internal flash memory. Two sensors are attached to the railway gate to monitor whether the gate is properly closed or not, and to detect the person or vehicle movement while the gate is closing. Two more sensors are used to detect train movements i.e., entering and leaving. The intelligent firmware detects the train entry near by the railway gate with the help of entry sensor, and then the railway gate starts moving towards the downward direction. The motor stops rotating if any obstructions occurred during this operation. If the gate is closed in a specified time the controller allows the train to move on the track; otherwise the controller reduces the speed of train by putting appropriate control signals on the track until the gate is closed. Finally, the gate is not closed if the train is near by the gate the controller stops the train by putting appropriate control signals on the track until the gate is closed. The gate automatically moves towards upward direction after leaving the train. It can be detected by leaving sensor. With the help of this control system, we can avoid accidents that occur at railway gates, human mistakes, and high maintenance of the control operation. This project was implemented by using 8051 micro controllers. The programs were written in assembly language.

17.Protocols b/w RTC & Micro controller

The main aim of the project is to read / write the time & date from the RTC via synchronous serial bus. We are implemented the protocol read / write the information from the RTC via I2C bus (Synchronous serial bus). With the help of this protocol we read / write the time & date in the relevant memory locations of RTC in ordinary mode & burst modes. The RTC is connected to port 0 of AT89c52 Micro controller. To read the time & date information with the help of protocol given by the manufacturer. The read value displayed on the LCD.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. RTC
4. I2C

S/W:

Assembly Language

18.Protocols b/w EEPROM & Micro controller

The concept of the project is to read / write data from EEPROM AT93C66 manufacturer by Atmel corporation 512 bytes EEPROM. Here we implemented the protocol to read / write the information from EEPROM by activating internal command processing, commands given by the manufacturer of EEPROM. The EEPROM can be used in different areas. The protocols includes read operation, Write operation & erase operation.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. RTC
- 4.I2C
5. LCD display

S/W:

Assembly Language

19.Protocols b/w DS1620 & Micro controller

The objective of the project is read the data from the temperature processor via I2C bus (Synchronous serial bus). The DS 1620 manufactured by Dallas corporation. With the temperature range of -55°C to 125°C with resolution of 0.5°C . It is more accurate processor provides I2C bus for communicating any Micro controller. The temperature processor is connected port 0 of AT89c52 Micro controller. To read the temperature information with the help of protocol given by the manufacturer. The read temperature value displayed on the LCD display.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. DS1620
4. LCD display

S/W:

Assembly Language

20.64 - bit Manchester code decoder

The project is designed with U2270B transponder reads the data from EM4160 Manchester cards. The serial data from U2270 is in Manchester encoded format. The encoded data is decoded by the firmware .The program written in Micro controller. The Micro controller decodes the data converts into ASCII format of 10 – digits. The code is transmitted to the P.C via synchronous serial bus.

H/W:

1. AT89c52 Micro controller
2. 11.0592MHZ crystal
3. U2270
4. EM4160

S/W:

Assembly Language

21.AUTO TIMER

The main aim of the project is to ring bells of schools/colleges/companies etc., according to the time schedule programmed in that timer. Here the schedule called as hours, minutes duration of bell are programmed through front panel keyboard. We have 20 intervals per day with variable duration and there is one more option, according to week the schedule can be altered. One AC outlet is provided at the output of timer to connect any kind of module that is connected. The project is constructed with MCS 51 series micro controller, RTC, Relays, EEPROM, Power supply and etc., The RTC has battery backup to run time and date during power fail cases. The program is written in assembly to read the data from RTC then compared with schedule written in EEPROM. The bell is at ON state for a specific period (Programmable) when both the data's are equal. We have established a bi-directional synchronous serial communication to read/write data from RTC and EEPROM

24. REMOTE SWITCHING - USING TELEPHONE LINES **(or) GSM based on/off control**

The main objective of the project is to control different electrical appliances/devices at remote area by using telephone line. Here the module at remote location is connected to the telephone line. Different devices are connected to the module. Here one can control all devices at remote area by means of simple dial to remote phone number using landline or mobile (GSM, CDMA) wear DTMF tone transmission facility available. After dialing wait for pre-programmed rings then actuate the module through security password subsequently ON/OFF codes for different devices. We provided an acknowledgment signal from the remote area to dialed area. The project is constructed with MCS 51 series micro controller, DTMF decoder, Relay, Power supply and etc.. The program is written in micro controller to count rings, read DTMF data from the telephone line, operates ON/OFF relays according to code received from DTMF. The DTMF decoder converts phone frequency to corresponding BCD code. In DTMF standards each switch on telephone keypad has different DTMF frequency.

25.ON/OFF SWITCH CONTROL USING MICRO-CONTROLLERS (IR BASED)

The main objective of the project is to reveal about the infrared communication between two devices via asynchronous serial communication. Here we have selected four different 230V AC operated devices controlled by a handheld remote controller. Remote is called as host and receiver module is called as device. The entire project is designed using two micro controllers.

89C51 - located inside the device and

89C2051 - located in the host

We establish a bi-directional communication between host and device via synchronous serial communication using IR medium. The different AC operated devices are connected to simple ON/OFF relays. The host contains three modules: keyboard, micro controller unit, and IR transmitter. The firmware written in micro controller scans for switch depression and transmits appropriate position to the device then waits for acknowledgement from the device.

The host is operated by battery i.e., 9V cell. The device consists of three sections: IR receiver, micro controller section, and relay unit. The device receives communication code from host, accordingly ON/OFF control is performed and the device is operated on +5V, 12V power supply taken from AC mains.

26.Auto Dim & Dip controls

The project is designed with Micro controller, LDR & comparator. The module is attached to the dim & dipswitch of vehicles for automation. The light is focused on the LDR reduces the terminal resistance
The LDR is attached to the comparator, the comparator O/P is digital signal attached to the micro controller. The Micro controller operates in three modes.
When the light is focused on the sensor, it automatically enters into the dim state, comes to the bright state after the opposite vehicle is crossed. The lights flickers for 2 or 3 times. The press to on switch attached to the Micro controller, if it depressed the lights blinks for a period of 2 or 3 second. It is useful during overtakes.

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REMOTE POWER MONITORING SYSTEM USING MICROCONTROLLER

ABSTRACT

Electricity is the modern man's most convenient and useful form of energy without which the present social infrastructure would not be feasible. The increase in per capita production is the reflection of the increase in the living standard of people. When importance of electricity is on the increasing side, then how much should theft of this energy or illegal consumption of power from the transmission lines be averted? Power theft has become a great challenge to the electricity board. Our project identifies the Power theft and indicates it to the Electricity board through Power line. We had also dealt about the remote monitoring of an energy meter. The project is constructed with the popular microcontroller MC551 series 8051 microcontroller, power measurement IC, voltage, current transformers and IR transmitter, IR receiver.

The central office is having a PC connected to the different energy meters fixed at different organizations wireless link. The energy meter connected at the consumer point continuous reads power data and sends it to the PC via infra red wireless link. The program written in micro controller to read and transmit the power data to the PC via IR data link on request. The PC can connected to number of users with there unique ID number. Initially PC transmits the ID code to the energy meters then the corresponding energy meters transmits the energy information to the PC with the help of this centrally we can monitor energy consumed by different consumers and useful for analyzing the unauthorized usage. The software is written in the PC for sending request to the energy meter and receiving the energy meter and receiving the energy data from consumer point.

The main advantages of this one are it is 100% metering and the second is the eradication of power theft. So this is effective method of metering which is a gradation to the present energy meters to ensure complete metering and also hampers the human hazards like power theft.

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ELECTRONIC PASSPORT USING RFID

ABSTRACT

This project deals with an improved form of passport which aims at eliminating the passport frauds. Existing passport technology suffers from the following drawbacks: (1) passport technology is paper based, subject to physical loss, theft, damage, etc.; (2) there is no convenient way to update the photograph, so passports expire after a maximum of 10 years for adults, and sooner for children; (3) it is difficult to re-trace a person's travels by looking at randomly located stamped entries in a small booklet. So there is a need (1) for an electronic version of the passport to provide an easily readable and searchable travel log (2) to be able to issue the passport upon demand. Radio Frequency Identification Devices (RFID) usage can be observed in this.

In this, we implement RF based card having 64 bit unique Manchester coding. So, the card will be completely passive and doesn't require any power. We implement one Manchester code decoder that produces a serial demodulator data. The serial demodulator data is read by the popular microcontroller MCX51 series 89C52. The microcontroller reads the data from the decoder and stores the data in static RAM attached to the microcontroller along with time and date from RTC. The code is simultaneously transferred to the PC via RS232 port. The program which will be written in the PC activates the data base file regarding the details of person along with his photograph. Instead of PC, here we maintain a local data backup to 2000 transactions in the form of templates for future analysis.

This can be a more securable read only card, can not be tampered by any one else and also eliminates the problems of finger print readers. Also the back up can be extended to some more transactions based on our requirement.

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IMPLEMENTATION OF INTERACTIVE VOICE RESPONSE SYSTEM (IVRS) USING MICROCONTROLLER

ABSTRACT:

INTERACTIVE VOICE RESPONSE SYSTEM (IVRS) is a technology that allows computer to detect voice and keypad inputs. The main objective of this project is to deliver the voice information on regarding any company, college, etc... As a part of college automation, our project can be made to allow knowing the information about a student through telephone without intention of the college authority. Here the request is made by the client over phone, GSM or CDMA phones.

The project is constructed with MCS 51 series 89c52 micro-controller and APR9301-V2 DSP processor. In this we construct a receiver which receives request from the user and decode the request. According to that decoded request it delivers the output from DSP processor. The DSP processor is a 28 pin IC which has a recordable voice facility, the voice can be changed based on the requirement. Initially the customer has to make a call to the relevant number then the machine enters into the answering mode and places the default voice and operations. Subsequently the user has to make the operations as per the instructions given by the preloaded voice. The assembly language program can be loaded into microcontroller to take the data from DUAL TONE MULTI FREQUENCY (DTMF) recorder and then it executes the operations according to the data from the DTMF output. DTMF interprets the callers' response to voice prompts.

It is a complete hardware implementation. The IVRS system can be made more efficient by using micro-controller. It can be made problem free and the program cannot be disturbed by any virus. The other applications where this IVRS system project can be used are billing enquiry system, dial-a question service, tele info system, income tax information, compliant handling system, etc...

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Modern Electronic Security Systems

This Project presents Micro controller, DSP controller based Electronic Security System. This security system is designed to inform the user(s) by Phone in any case of unsecured situation in his home / office / godowns, etc. wherever the equipment is installed. This equipment has magnetic sensors at every ventilation i.e. doors, windows etc. The Passive Infrared sensors (PIR) for human body detection, Piezo electric vibration sensors for detection of vibration of walls, slab, etc which will be a closed circuit.

The sensors are in contact when the doors are closed that makes the circuit closed. And if the doors are opened, the circuit breaks and the home lights get switched on. The micro controller waits for the seconds of time specified. In unsecured situations the micro controller Calls the four specified phone numbers through your landline phone connection or GSM modem and transfers the voice message recorded in the DSP controller (address details) and at the same time a loud buzzer sounds at 1000 watts PMPO of power continuously until the system is switched off with a key which is provided only with the product or the password entered through the matrix keyboard. This equipment is designed by using micro controller to give maximum security and digital communication systems. The system has other features like Panic Button, Emergency Doctor's Button to transfer information about health seriousness to their personal doctors. This equipment works on automatic rechargeable battery during power failures. The link between Sensors and Control Panel is FSK/ASK transmitter & Receiver.

List of Components

- 89C52 – microcontroller – MCs 51 series
- APR 9301–V2 - DSP controller for voice recording
- BT91531 – DTMF dialer (Tone / Pulse)
- CD4052 – Analog Multiplexer
- 93C66 – Serial EEPROM
- 4N35 – Opto Coupler

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- LM393 – Battery Low Voltage Comparator

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AUTOMATIC TOLL GATE BILLING WITH RFID

In present situations the toll gate billing is made by the user with the help of manual billing or computerized billing by entering vehicle Number, vehicle registration number, type of vehicle etc. Due to these there are following disadvantages:

1. Time taking process to enter data and giving token printing & money
2. Manipulation possible at toll gate by the operator.
3. Difficult to stop the fast moving vehicles at the tollgate.
4. .More manpower is needed at toll gate

Here we have taken the above problems into the consideration and developed automatic billing system for the vehicle, by taking vehicle registration number, engine number charges etc., as soon as vehicles pass through the gate, through RF technology. So by taking the data automatically, debits the toll gate fee from the bank account and maintains the data base of all vehicles. So we have connected a RF reader module to the pc for reading data from the vehicle. If there is no bank balance or inactive cards the gate will be automatically closed and gives the siren for intimation. The automatic cash receipt is generated in this case.

The above project is designed with the popular microcontroller MCS51series 89C52 &RF transponders TK5530, U2270 chips, Max232c&ULN2003 motor driver. We have to establish bidirectional communication with PC.

With the help of this implementation we can solve the above four problems. We can track the theft vehicle while passing through the toll gates and registration numbers cannot be modified by the thieves

D.C MOTOR SPEED CONTROL USING PWM

ABSTRACT

(Key words: duty cycle, pwm)

The objective of the project is to control the speed of DC series motor by using PWM technique. The project basically consists of micro controller MCS 51 series 8051 and motor driver, key pad, LCD display and rotation feed back sensor (optocoupler). The program is written in micro controller to take the input values from the user, then rotates the motor by placing 50% duty cycle pulse on the motor. The motor is rotated at X RPM speed, can be detected by using feed back sensor and micro controller. If the speed is above the specified speed then the micro controller continuously reduces the duty cycle till the speed comes to a predetermined level. If the detected speed is less than the pre determined speed then the micro controller continuously increases the duty cycle till the determined level. The micro controller keeps on tracking the determined speed by varying duty cycle in a closed loop control system.

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“DIGITAL TELEGRAM TRANSMITTER-RECEIVER USING 8051 MICRO-CONTROLLER”

ABSTRACT

The two important issues that play a key-role in communications area are

- Effect of channel noise.
- Limited channel bandwidth.

These two disadvantages are greatly suppressed in Digital Communications than in Analog Communications. The rapid strides in the field of Digital Communication and high speed computing necessitates complex digital designs with high level of integration. Traditional techniques of digital communication become cumbersome as the level of integration increases. In order to overcome these, various techniques are developed. One of it is, INFRARED RAYS (IR) COMMUNICATION.

This project primarily deals with the modeling of DIGITAL TELEGRAM, consists of both transmitter and receiver, using micro-controller 8051. This micro-controller can be programmed to perform several controlled operations. In Digital Communication System, timing is every thing, which means the receiver must be synchronized to the transmitter.

The basic objective of this project is that it deals with electronics and communications too. Further, the communication is made possible through infrared rays (with low cost). The main advantage regarding the usage of this DIGITAL TELEGRAM is its low cost, due to the advanced development in the digital technology and the usage of this digital ICs. Noise is unavoidable in any system. Since in Analog Systems the exact values of the voltages are important and in Digital Systems only the range of values is important, the

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effect of noise is more severe in analog systems. In digital systems, noise is not critical as long as it is not large enough to preventing us from distinguishing a HIGH from a LOW.

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SATELLITE SIGNAL TRACKING SYSTEM

ABSTRACT

The Main objective of the project is to control the Satellite Dish Antenna movement according to the orbit of Satellite. It is useful to produce the maximum signal strength from the Satellite. For the purpose of practical demonstration we have constructed Antenna by using LDR 's and substituted satellite with a laser light so that signal strength will be measured in terms of light intensity.

The project is designed with Micro Controller 89c51 and stepper motor, motor driven circuit, LDR 's and voltage comparators. The Antenna attached to the stepper motor rotating towards the forward direction and reverse direction.

Initially the program written in micro controller scans for the maximum light intensity (maximum signal strength) focused on the Antenna then stops rotation. When the light intensity is decreased again it looks for maximum light intensity and moving in incrementing direction. Again it stops rotation at maximum value. The rotating direction may be clockwise or anticlockwise.

All LDR 's, limit switches are connected to the input port, motor is connected to output port of Micro Controller.

It is an useful project to rotate the Antenna in the direction of satellite.

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TRAFFIC DENSITY CONTROLLER

ABSTRACT

(keywords: LCD, IR)

Now-a-days all traffic signaling systems are predefined, fixed timing signals due to this any one of the directions, having more traffic may not be controlled by the existing system. This problem may be solved with the help of new concept, allotment of time based on traffic density.

Here initially we are sensing the traffic density by keeping IR transmitters and receivers of two edges of road at different places. If any vehicle is in between these two interrupts, IR receiver subsequently sensed by the microcontroller. Here we are allotting more time for more traffic directions and less timing for high traffic areas. Here we have established four junction road traffic signal lights. Each road is having two IR sensors, two lights (red, green). Here we are used the popular micro controller MCS 51 series family 89C52 for executing the entire process. The 16X2 matrix LCD display is used to indicate the remaining time of each direction.

If any road is not having traffic, the signal automatically switch over to subsequent road having traffic. We have given a piezo buzzer for giving beep when there is no traffic in four roads along with red light blink. The assembly program written in micro controller for executing above process.

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ABSTRACT

An **Ultrasonic** or **Sonar Range Finder** is a common sensor in robotic systems and industrial environments. Ultrasonic sensors use reflected or transmitted ultrasonic waves to detect the presence or absence of a target component. The output is trivial in respect that the sensor merely detects whether the target is or is not within the design detection range. Measuring distance with ultrasonic signals requires a transmitting ultrasonic transducer; a medium, such as air or water; a reflecting surface or object; a receiving ultrasonic transducer; and a time-of-flight measurement circuit. The sensing is initiated by first creating a sonic ping at a specific frequency. The transmitter circuitry consists of a micro-controller 8051 which provides the required 40 kHz signal and starts the timer. This is fed to a piezo-electric crystal which converts the electric signals to equivalent sound waves at the same frequency. These waves are made to transmit in air. Whenever any object is in the way of this signal, the signal gets reflected.

This reflected signal then travels back towards the transducer, again at the speed of sound. The receiver circuitry receives the reflected 40 kHz sound waves and converts into equivalent electrical signals at the same frequency using a piezo-electric crystal. The received signal after sufficient amplification is sent to a peak detector and a comparator which sends a high signal whenever a received signal is detected. This serves as interrupt to the micro-controller which stops the timer. This provides the round trip propagation time of the sound wave from transmitter to the object. Using the velocity of sound in air we can find the distance of the object from the transmitter.

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**“WIRELESS NOTICE BOARD USING MICROCONTROLLERS
(PC BASED)”**

ABSTRACT

Any important information can be conveyed to other people or students in an organization, a firm or a college in many ways like sending a notice via a person to all the classes which is a very hectic process, or displaying on a notice board or a college radio which is the latest technique in all developed countries. But in a developing country like India notice boards are the main source of conveying information. This could further be done either mechanically or electronically. But the main disadvantage of displaying mechanically is that the updation of information takes a lot of time. So it's better to go for the other ways of display. Data could be transferred from the transmitter(source producing the data) to the receiver(destination i.e, a display board like using a set of LED'S or LCD) wirelessly or using wired transmission. Our project is concerned about wireless infrared transmission since IR rays are the best for short-range communication.

The main objective of our project is to reveal about the infrared communication between two devices via asynchronous serial communication, enhance mobility via wireless connection. It is very simple and extremely cheap wireless data transmission in atmosphere without any disturbances. Even in night times, the data transmission is very and effective. The required voltage(+5V here) is supplied to transmitter and receiver from the power supply. Information that is required to be displayed is entered through the keyboard of a PC. The data is transferred to the receiver using an IR LED. The IR receiver module receives the information. The received data is sent to the microcontroller. The project is constructed with 89C52 Micro controller. It provides the information to the LCD for display. Hence our objective is achieved.

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