DEVELPOMENT OF ENVIRONMENTAL MONITORING SYSTEM FOR REAL TIME APPLICATIONS

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ABSTRACT: In this project development of environment monitoring system for real time applications is implemented. By using 8051 microcontroller entire system is controlled. Whenever there is change in temperature then temperature sensor will be activated, the exhaust fan will be on and send SMS will be send corresponding phone number. Whenever there is rain then rain drop sensor will detects, shelter will be provided and sends SMS to the corresponding phone number. Hence this project gives effective outcome.

KEYWORDS: Temperature sensor, Raindrop sensor, Crystal oscillator, RS232, GSM.

INTRODUCTION

As we know the industrial growth drastically increasing, environmental pollution related issues rapidly comes into existence.

To fulfill the need of flourishing monitoring system, in our project we are establishing a network called Internet of Things, in which sensing devices are connected with wireless embedded computing system.

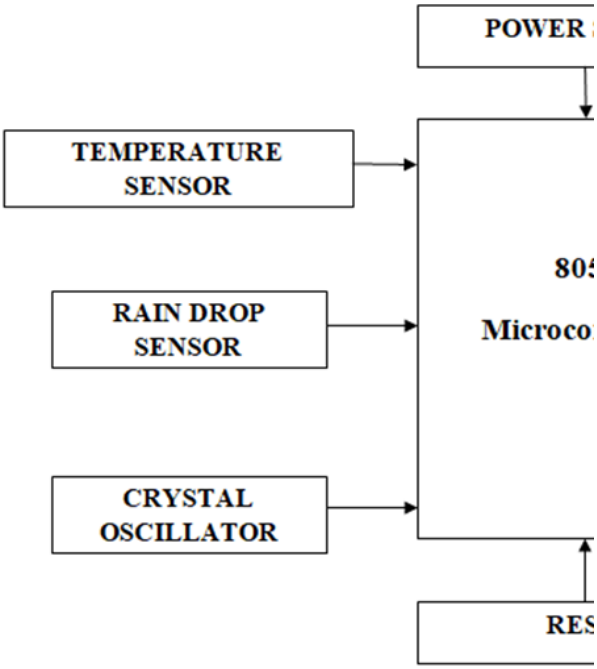
"Internet of Things" is a technology that hook up the sensors with embedded system and allow the data from these sensors to travel over an Internet

SYSTEM ARCHITECTURE

A.PROPOSED SYSTEM:

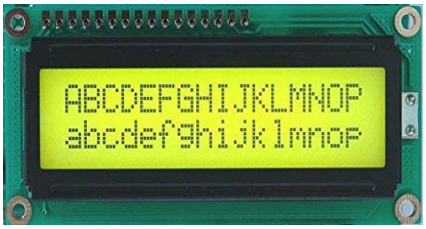
Our proposed system presents a Development of Environment monitoring system that helps in detecting the environmental changes in the atmosphere, by using temperature sensor and rain drop sensor the entire system is controlled and send SMS to the corresponding user's mobile number.

Block Diagram



HARDWARE USED

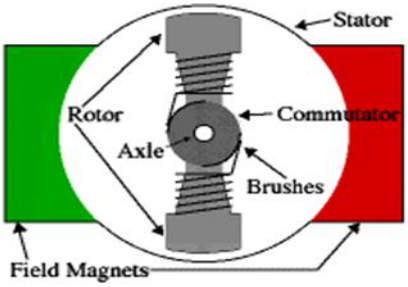
- **8051 MICROCONTROLLER**: A Microcontroller is a VLSI IC that contains a CPU (Processor) along with some other peripherals like Memory (RAM and ROM), I/O Ports, Timers/Counters, Communication Interface, ADC, etc.
    1. It is build with 40 pins DIP
    2. It has 2 bit timers
    3. It has ROM -4Kb and RAM-128bytes



- **16X2 LCD DISPLAY:** A 16X2 LCD is a device which is used for displaying any message in the form of text and numbers. They can be easily programmed and can be used with different microcontrollers. They are preferred over seven segment display due to the ease of their use and convenience. A 16X2 LCD has 2 registers, command and data.

- **GSM** : A customised Global System for Mobile communication (GSM) module is designed for wireless radiation monitoring through Short Messaging Service (SMS).
- **TEMPERATURE SENSOR:** LM35 is an analog, linear temperature sensor whose output voltage varies linearly with change in temperature. LM35 is three terminal linear temperature sensor from National semiconductors. It can measure temperature from-55 degree celsius to +150 degree celsius. The voltage output of the LM35 increases 10mV per degree Celsius rise in temperature. LM35 can be operated from a 5V supply and the stand by current is less than 60uA.

- **RAINDROP SENSOR**: Rain drop sensor is a tool used for sensing rain. It consists of 2 modules, a rain board that detects rain and a control module, which compares the analog value and converts it to a digital value.
- **STEPPER MOTOR**: A DC motor is an electric motor that runs on direct current (DC) electricity. In any electric motor, operation is based on simple electromagnetism. A current-carrying conductor generates a magnetic field; when this is then placed in an external magnetic field, it will experience a force proportional to the current in the conductor, and to the strength of the external magnetic field.



- **REGULATOR:** A voltage regulator is a system designed to automatically maintain a constant voltage level. A voltage regulator may use a simple feed forward design or may include negative feedback. It may use an electromechanical mechanism, or electronic components.

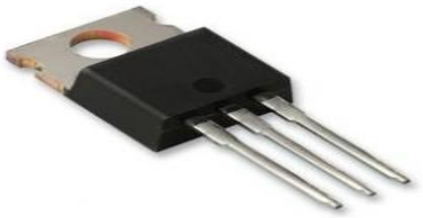
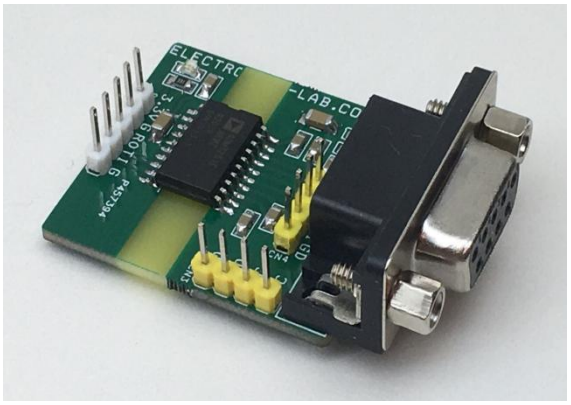


FIG:7812 Regulator



- **RS-232** : The RS232 protocol and cable allow the computer to give commands to the printer via a voltage signal. The printer then deciphers those commands and completes the print.

- **RELAY :** A relay is an electrically operated switch. They commonly use an electromagnet (coil) to operate their internal mechanical switching mechanism (contacts). When a relay contact is open, this will switch power ON for a circuit when the coil is activated.

- **POWER SUPPLY**: Power supplies in recent times have greatly improved in reliability but,

because they have to handle considerably higher voltages and currents than any or most of the circuitry they supply, they are often the most susceptible to failure of any part of an electronic system.

RESULTS AND DISCUSSIONS

Whenever there is change in temperature and similarly whenever there is rain this system helps us to alert and automatically it provides shelter through stepper motor and exhaust fan cools the temperature within certain area and send SMS to the corresponding phone number

CONCLUSION

Hence In this project development of environment monitoring system for real time applications is implemented. By using temperature sensor and rain drop sensor entire system is controlled and operated. Hence this project gives effective outcome. In future we can extend this project by using raspberry pi.

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