MEASURMENT OF DIFFERENT PARAMETERS FOR SAFETY OF RECORD ROOM IN THE BANK

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ABSTRACT

With the latest technological advancements in the 21st Century human beings are more concerned with security, convenience and comfort as technology rapidly changes to stop crime. Also with people leading a busy lifestyle there is a necessity of controlling bank appliances and performing bank surveillance remotely in bank record room Bank is a one of the example of institute that using information technology in its daily task to fulfil the organization and customers need. Customer's personal information stored by the bank is also consider as a private and should not be disclose anybody with no authorization.. Most of the bank appliance and security systems currently in the market are limited in terms of area of coverage and number of electronic devices to be controlled.

The goal of the project is to design and implement a smart system for controlling the bank record Appliances remotely with the help of a mobile device and getting alerts. Previously record room control systems are designed for only one parameter monitoring. To control more than one parameter simultaneously there will be a need to buy more than one system.. This paper is included with Temperature sensor for measuring temperature, Humidity sensor for measuring humidity, IR Flam sensor for smoke detection, PIR Motion sensor used for detection of human or animal motion, finally PIR sensor for burglar indication, Relay is used for authentication purpose, GSM module; it is a very effective and accurate technique to transmit useful information. The system use wireless sensor network. System eliminates the difficulties involved in the system by reducing human efforts to the best possible extent.

Keyword:-*GSM, Temp Sensor, IR Flam Sensor, PIR Sensor, Humidity sensor, Relay, Buzzer, WSN etc.*

1. INTRODUCTION:-

The system will have features that can enable automatic monitoring and control, detection and switching functionalities for bank record room electronic appliances. In any bank record room during certain hazards it is very essential to monitor weather.

In proposed system four sensors are used. Sensors are used to satisfy the human needs like automatic ON and OFF. Now a day's sensors are used in daily applications in order to reduce the human need in banks, Industries, Automation. Basically sensor is a device that detects events and provides an output generally as an electrical or optical signal.

Exhaustive research has been carried out based on Monitoring scheme with various protocols and systems providing detailed description of remote process states to the authorized users. The use of GSM modem for carrying sensing and control of devices in the system by users having cellular coverage. Numerous systems have been developed using Wireless Sensor Networks which consists of several sensor nodes in proximity and having data transmission and reception capability between nodes and central base station for wide range of applications. Wireless fire alarm system is a good way of achieving fire detection, which can actualize no wiring requirement, network, intelligent fire detection.

Wireless sensor networks sometimes called wireless sensor and actuator network are spatially distributed autonomous sensors to monitor physical or environmental condition like temperature, humidity etc to cooperatively pass their information through GSM to main location.
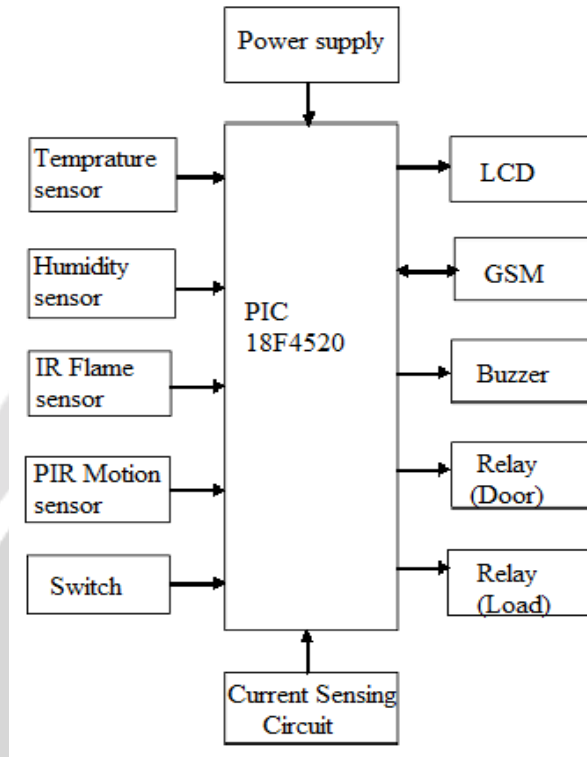
2. BLOCK DIAGRAM:-

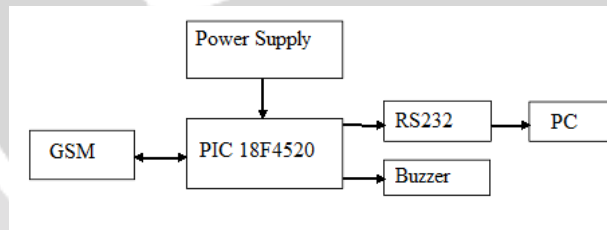**Fig-1:** Block diagram for system for record room

Fig-2: Block diagram of system for office

Transmitter and receiver sections are as shown above respectively. The PIC18F4520 microcontroller is interfaced with 16*2 LCD.LCD is used to display the readings of parameters which are being monitored. For transmission and reception of the signal RF module is used. Temperature, Flame, Motion, Humidity are sensed by the four sensors. Message will be send to owner through the GSM module.

2.1 Motion sensor-

Fig-2.1.1:PIR Motion Sensor

The developed motion sensors have the smallest volume and weight requirements available at the moment to monitoring dysfunction of animals [1]. The collected data from the sensor is more representative since the subjective human factor is minimized and the animal can stay in its usual environment rather than being placed in a separate observation.

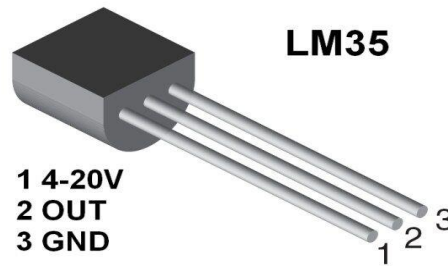### 2.2 LM35 temperature sensor-

Fig-2.2.1: Temperature Sensor

The LM35 series are precision integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Celsius (Centigrade) temperature. The LM35 thus has an advantage over linear temperature sensors calibrated in ° Kelvin.
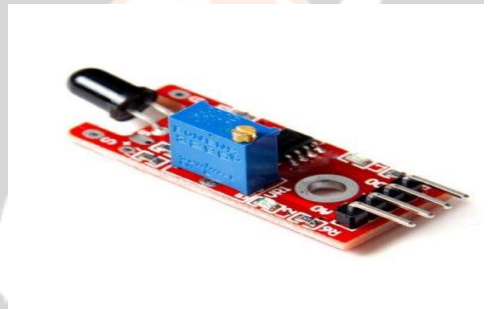
2.3 IR Flame Sensor-

Fig-2.3.1:IR Flame Sensor

The smoke detectors, the current sensors, the voltage sensors and the MCBs are used to detect type of the fire. These sensors send the information to the control unit continuously. According to that control unit can be identify the zones of the house or bank building plan. After detecting the active zones (fire zones) the control unit then activates the fire extinguishers and shuts down the power supply to that zone by using the actuators and relays respectively. Simultaneously wireless modem module sends mobile messages (SMS) containing information of the fire (address of the building, time and fire zones) to the owner and the local fire department of the area [2].

2.4 Humidity Sensor-

Fig-2.4.1: Humidity Sensor

Humidity sensor is an analog sensor and gives the output into form of analog signal. This signal is feed to ADC which will convert it into digital form. Once converted into analog form, the microcontroller can process the digital humidity signal as per the application. This sensor gives the value of change in humidity in the atmosphere as per the application. For measurement of the humidity in the medium a HS220 humidity sensor has been used. HS220

humidity sensor is low power consuming and highly stable device for measurement of humidity. This sensor has excellent linearity, anti-pollution, low cost and can be measured in wide range of applications [4].

2.5 PIC18F4520-

PIC18F4520 is a great PIC MCU to start working. It has many features and easily affordable. This PIC is reprogrammable many times because it has flash memory and programming can be done using IC-program. The PIC18 family has special features to reduce external components, thus minimizing cost, enhancing system reliability and reducing power consumption.
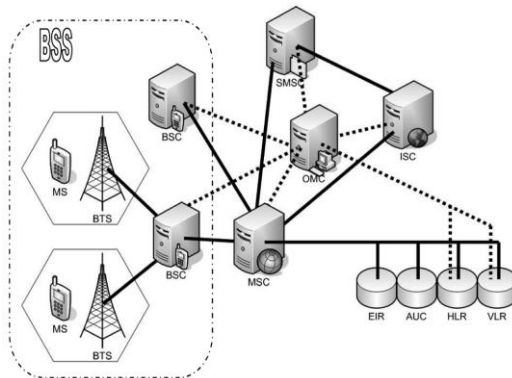
2.6 GSM Section-

Fig-2.6.1: The overall structure of GSM network

Here the microcontroller is connected to the dedicated mobile through RS 232. GSM can send SMS through the mobile. The SMS is then received by another dedicated mobile which connected to PC. On PC we can see all the parameters.

2.7 RELAY-

It is on/off switch which uses 12V supply. It is use to make the door on or off. A relay is an electrically operated switch.

2.8 BUZZER-

Buzzers are used in a system to indicate or to grab the attention regarding an emergency situation occurred. Buzzer act as a panic horn which indicates the need of instant attention as the condition goes haywire.

2.9 LCD-

A 2 x 16character LCD display with black text on a LCD. The pictures don't do justice to the bright green background with clear black text of this display.

3. RESULT

The fault identification is done using sensor and the parameters are measured, The monitored data is analyzed and send to PC through GSM. The location and the type of faults are analyzed before it occurs and are transmitted from record room to the control centre through GSM .

The effect of harsh condition of the nature, high temperature of system, high humidity, unpleasant of motion, flames or fire are the causes of fault to be occurred in the room. It is very important perform the monitoring and fault diagnosis of record room parameters. Therefore in this project, the design of a remote monitoring and fault diagnosis system and control indication based on GSM. Finally the System performance and the efficiency is effective and reliable.

Parameters	Defined Values in Demo	Status	Standard value
Temperature	<45ºC	Cooler OFF	-40ºC to

	>45ºC	Cooler ON	85ºC
Humidity	<30%	Fan OFF	30% to
	>30%	Fan ON	90%

TAB 3.1 Result

4. CONCLUSIONS

The study which have done up to till is to satisfy our objective that is we will achieve the environmental condition for record room by using this system and optimizing parameter. It will definitely give constant measured value of various parameters in any season.

Appling advanced wireless sensor network and GSM technology we designed this system which can detect four parameters. This system applies multiple Detection nodes to work together and multi-parameters to identify accurately, this kind of system has a particular advantage in the protection of records in buildings and other special places that is suitable for the layout of record systems.

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