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IOT BASED THEFT PREMPTION AND SECURITY SYSTEM

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ABSTRACT:

Internet of things has been governing the electronics era with cloud services dominating the ever-increasing electronics product segment. Security and safety have always become a basic necessity for urban population. The paper proposes a novel security system based on Open-source cloud server "things speak .com" and a low cost esp8266 Wi-Fi module. The project includes a PIR module which constantly monitoring the Home or Work space to be monitored. When the PIR module detects an intruder it sends a signal to the microcontroller and the controller is connected to a Esp8266 wifi module and also to an alarm system. The System transmits an alert signal to the Open-source cloud which provides an alert signal on the user's mobile phone. The system employs a second esp8266 module which is programmed to act as a web server, which allows the user to activate or deactivate the security system by means of any device with internet. The system also employs a thumb print reader rs305 which controls the opening and the closing of a safety locker door. Thus, the system uses esp8266 Wi-Fi module and to control the security system from the user's mobile phone by means of any device with a potential internet connection.

KEYWORDS: IOT, esp8266 Wi-Fi, thing speak, Web server, Theft detection, PIR

1. INTRODUCTION

The Internet of Things (IoT) is the physical network of things or objects—devices, buildings, vehicles, and other items—embedded with electronics, software, sensors, and network connectivity that enables these things or objects to collect and exchange data. An anti-theft system is any device or method used to prevent or deter the unauthorized appropriation of items considered valuable. Theft premption based on IOT provides a system. Internet of Things is expected to produce high degree of human to machine communication along with machine-to-machine communication. This project proposes the security system using IOT, which prevents theft in home, bank etc. The primary objective of this project is to reduce human work. Automation has always been a prime factor for security system. We aimed in the project is to design and implement a security system. System that offers controllability through a hand-held mobile phone by means of IOT. The commands from a mobile phone are used to switch ON and OFF the alerting system. This project is implanted as prototype model.

2. LITERATURE REVIEW

N. Barsoum - DC motor control by dispatching SMS from phone microphone. GSM module will receive sms of desirable motor speed in RPM

Ritesh Chaubey and his team- DC motor interfacing with microcontroller different letters in coded with clockwise, anticlockwise and stopping of the direction of the DC motor is controlling by adopting h Bridge

AnkeshN. Nichat and team - speed and direction controlling by DC motor is obtained by radiofrequencies Technology science and wireless

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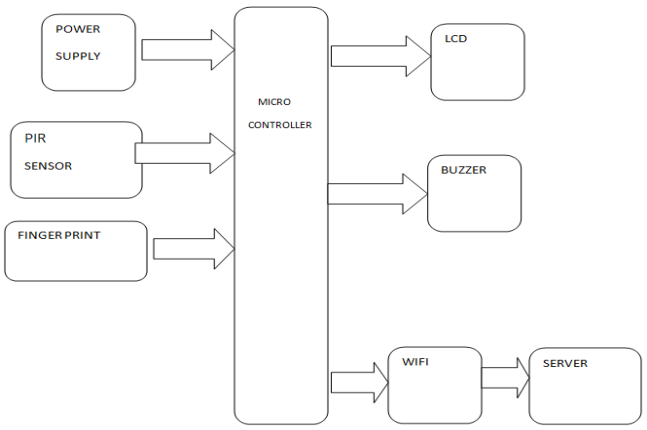
Abhishek Khanna and Priya Rajan -motor driver IC L293D interface with arduino Uno used Solar Panel for 12 volt supply in adaptor cost effective and eco4friendly projects used for robotics drones, house doors etc.

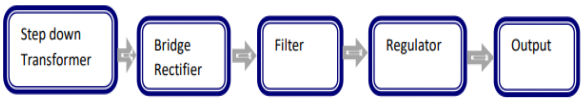
The microcontrollers are user friendly and can be operated by anybody without any trouble. Also less manual intervention is required for operating the microcontrollers, which reduces labour [2] cost. Here the clock source is coming from the crystal of microcontroller [6]. DC motors are widely used because its speed- torque characteristics can be varied to almost any useful form [3, 4]. There are so many ways to control speed. For instance, armature voltage control and excitation control method [7]. Pulse width modulation is a method for binary signals generation, which has 2 signal periods (high and low). The width (W) of each pulse varies between 0 and the period (T) [11, 12]. The main principle is control of power by varying the duty cycle [13]. Infrequently electric fan utilization is squandering force as a result of human demeanor. Human additionally generally requests something that effortlessly to be utilized without squandering vitality. To minimize or diminish the force use, this venture added to a programmed framework where pace is controlled by the room temperature.

3. System Architecture:

Block diagram:



Power supply diagram:



4. DESCRPTION OF COMPONENTS

4.1 ARDUINO

The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

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Fig: Arduino

4.2 LCD

Liquid Crystal Display also called as LCD is very helpful in providing user interface as well as for debugging purpose. The most commonly used Character based LCDs are based on Hitachi's HD44780 controller or other which are compatible with HD44580. The most commonly used LCDs found in the market today are 1 Line, 2 Line or 4 Line LCDs which have only 1 controller and support at most of 80 characters, whereas LCDs supporting more than 80 characters make use of 2 HD44780 controllers.

Fig: LCD

4.3 FINGERPRINT SENSOR

A fingerprint sensor can read different fingerprints and store in its own flash memory. The sensor can perform three functions namely Add (Enroll), Empty Database or search database and return the ID of stored fingerprint. Any of three functions can be called simply by making the pin low of the sensor or pressing onboard three switches. The response is either error or ok which is indicated by onboard LED. The response is also returned as single serial data byte.

Fig: FINGERPRINT SENSOR

4.4 DC MOTOR:

A direct current (DC) motor is a type of electric machine that converts electrical energy into mechanical energy. DC motors take electrical power through direct current, and convert this energy into mechanical rotation.

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WIFI

A wireless network uses radio waves, just like cell phones, televisions and radios do. In fact, communication across a wireless network is a lot like two-way radio communication.

Fig: WIFI

5. SOFTWARE IMPLEMENTATION

Arduino IDE

IDE stands for ―Integrated Development Environment‖:it is an official software introduced by Arduino.cc, that is mainly used for editing, compiling and uploading the code in the Arduino Device. It is a cross-platform application (for Windows, macOS, Linux) that is written in functions from C and C++.Arduino IDE is anopen source software that is mainly used for writing and compiling the code into the Arduino Module. Ithas serial monitor mainly for interacting with the Arduino board using the computer, and is a great tool for real-time monitoring and debugging.

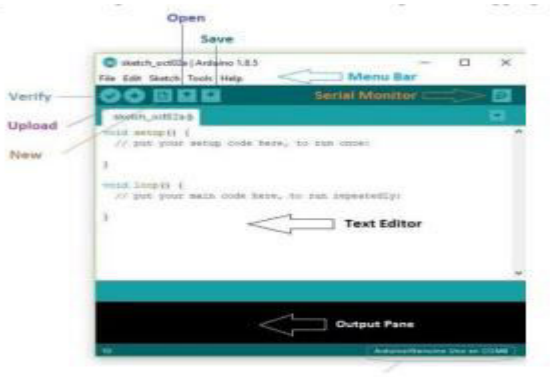

Fig 5.1: Arduino IDE

Implementation IOT:

The internet of things, or IoT, is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

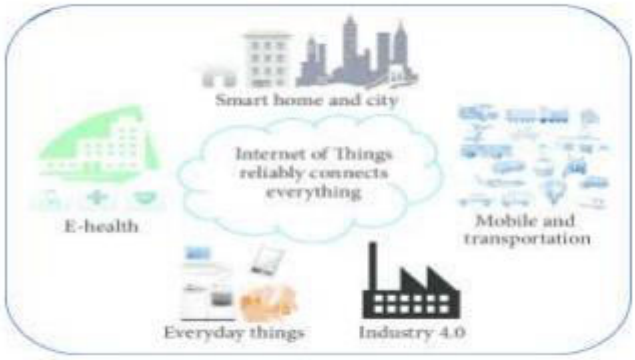

Fig 5.2: IOT Implementation

RESULT

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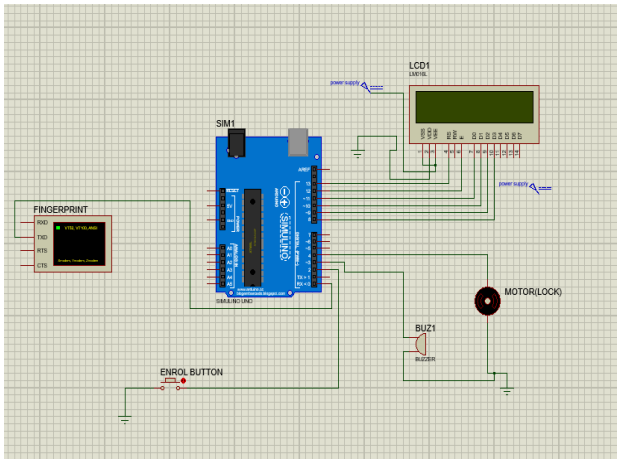

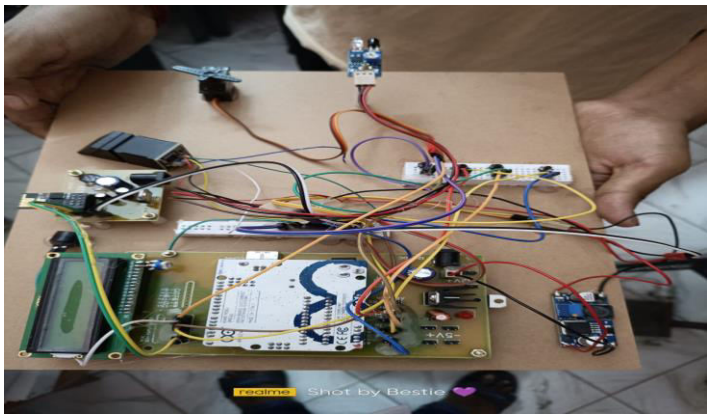

CONCLUSION

The project "IOT BASED THEFT PREMPTION AND SECURITY SYSTEM" has been successfully designed and tested. Integrating features of all the hardware components used have developed it. Presence of every module has been reasoned out and placed carefully thus contributing to the best working of the unit. Secondly, using highly advanced IC's and with the help of growing technology the project has been successfully implemented. Embedded systems are emerging as a technology with high potential. In the past decades microprocessor based embedded system ruled the market. The last decade witnessed the revolution of Microcontroller based embedded systems.. With regards to the requirements gathered the manual work and the complexity in counting can be achieved with the help of electronic devices.

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