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Design and Implementation of ATM Security System using IOT

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Abstract: ***In today's there is no proper security to the atm system so to avoide this problem used new technology. The aim of this projected work is to be execute a low cost & without help Embedded Web Server based on Arduino Controller. It offer a physically powerful networking resolution from side to side wide range of application area over internet. The Web server be capable of run on top of an embedded system contain restricted asset to serve embedded web page to a web browser. The system be projected designed for ATM safety, comprise of the module that is, verification of shutter lock, web enable control, sensors & camera control. This development consists of two sides, one is at the door side with Arduino microcontroller & another one is inside ATM with Arduino controller Smoke ,metal & force sensors are use for protection purpose. The alert messages will be send toward the authorized person if vibration or smoke is detect. The person's mobile number is store in the system at the***
Keywords: arduino mega2560, GSM, Node mcu, sensors.

I. INTRODUCTION.

In present there is no appropriate safety used for ATM machines. Robbery of the ATM machines have be bigger extensively. & also even crime associated by financial group have be increased. The financial organization crimes which is increased from 1999 to 2003, where bit it is decrease in 2004, again it is increased from year 2005 throughout past 012 years these theft & robber cases are happened. By using existing technology ATM machines are not dangerous in order to afford security for the money. Therefore, to overcome this problem the technique of fast response & reduces loss.

II. FUNCTIONAL BLOCK DIAGRAM AND DESCRIPTION.

The figure 1 depicts the block diagram of Implementation of Atm Security System. The components which are used and about the working system is given below in detail.

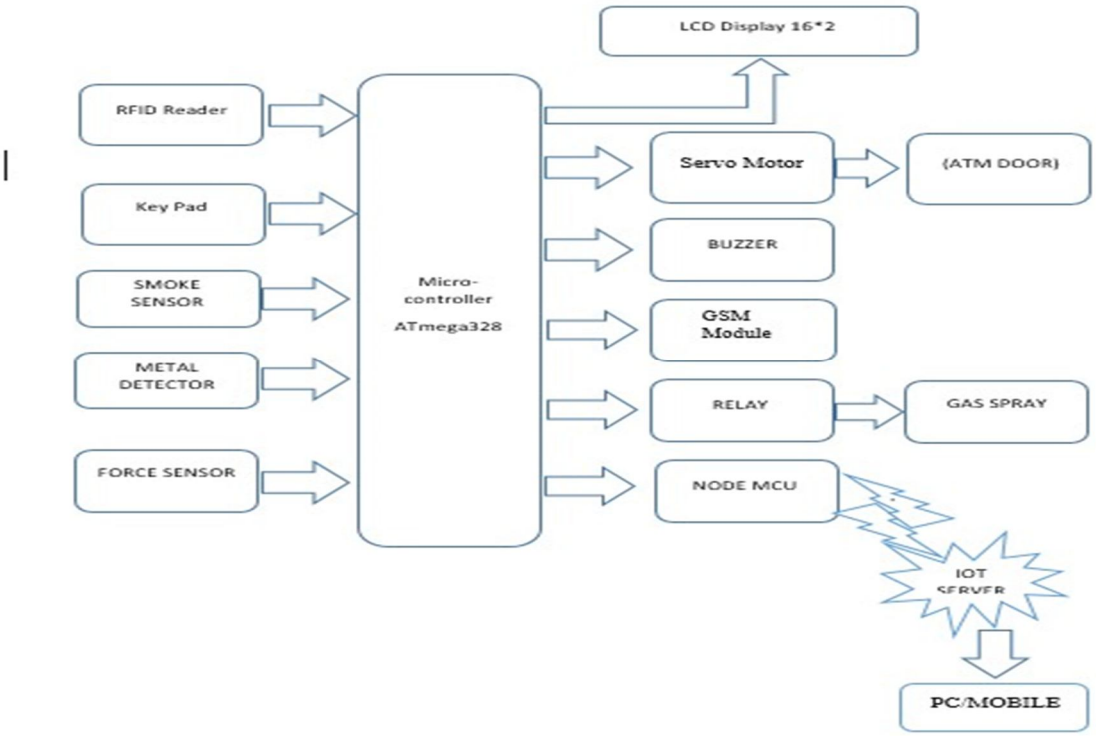


Figure 1: Functional Block Diagram

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A. Components Required

The components which are required for the implementation design are given below.

B. Arduino Mega2560

The arduino is a The Mega be a microcontroller board set up on the ATmega-2560P. It have 14 advanced information/yield pins 06 easy sources 16 MHz quartz precious stone, a USB associations, a power jacker, an IC-SP header &a resets catch.

C. RFID reader

A radio recurrence identifiable evidence peruse is expedient which be utilized toward accumulate data from a RFID card, which be utilized toward follow explicit objects, article may be either creatures, or even human living beings to be identified. Where Radio waves be utilize in the direction of move information from the card to a peruser. This is a most minimal recurrence RFID peruser with sequential yield with a range from 8-12cm.

D. Smoke Sensor

The senor which is used to detect the smoke .if a person smoke inside the atm or smoked automatically the senor will get active and buzzer gets on.

E. Metal sensor

This sensor is used to detect the things which are belongs to the metals things for example, knife, gun etc.

F. Force sensor

When a person touch the machine forceably that will sense by the force sensor to avoide robbery

G. Keypad

A keypad is a standout amongst the most typically utilized info gadgets in chip employments. In a customary keypad wired as a X-Y switch lattice, ordinary open switches associated a line to segment when pushed. On the off chance that a keypad has 012 keys, it is wired as 03 sections by 04 lines. A 016 key cushion would have 04 sections by 04 columns.

H. GSM module

Gsm which is used for communication purpose an addition to the voice gsm also used for transmitting the data.

I. Node MCU (ESP8266)

The Node Microcontroller Unit commonly known as Node MCU is an open source software & hardware advance kit which is constructed around much less expensive “system-on-chip” known as ESP8266.The ESP8266 itself is an autonomous Wi-Fi sorting out course of action offering as an expansion from existing littler scale controller to Wi-Fi.

J. LCD Display

A liquid crystal display be thinned, level electronic graphical introduction that utilized in light tweaking things of fluid gems. LCs does not transmit light unmistakably. They be utilize within a wide degree of usage joins: PC screens, TV, tool load up, flying machine cockpit shows up, signage.

K. Buzzer

A buzzer is an electronic equipment that produces a beeping & buzzing sound. the most basic buzzer is piezoelectric buzzer.
Software requirements
It is an open source platform for programming. the program can be embedded c etc.

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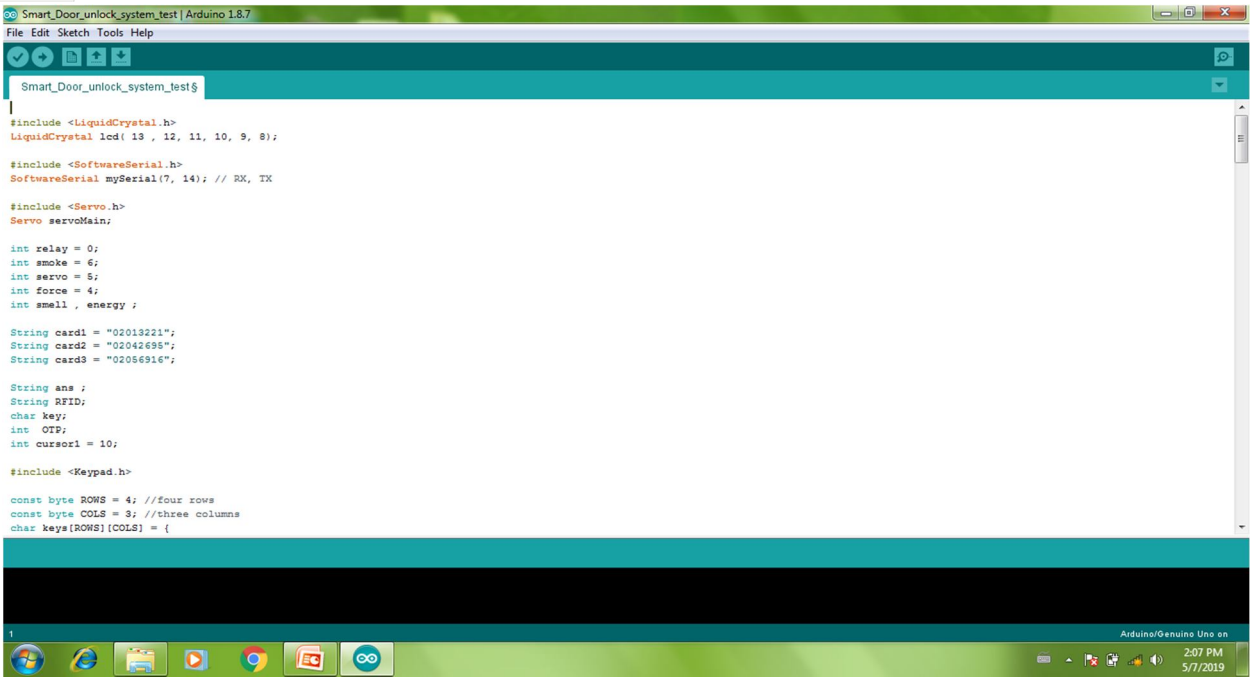


Figure 2: example code in ARDUINO tool

L. Working Of Proposed System

The above figure which consist of sensors, gsm module, node mcu. When you tap the RFID card where the microcontroller ATmega328 checks whether the individual is approved or not on the off chance that the individual is approved, at that point card gets perceived .after that OTP gets created, at that point that OTP sends to mobile phone through GSM module .subsequent to getting OTP enters it through keypad which go about as information. In the wake of entering the OTP then it will open the atm entryway where servo engine is set. Where smoke sensor, metal finder and power sensor is set to identify the surprising flame &smoke ,and if an individual have blade or any related with the metal things it will recognize by metal locator and ringer jumps on and even power sensor in the event that we give any power to atm machine, at that point bell jumps on . hand-off is utilized to control the gadgets and gas shower is utilized on the off chance that anything burglary will happen consequently this gas splash can utilize. we can store the information through the NODE mcu, iot serve from where we get the data in the event that anything moving incorrectly in the spot of atm.

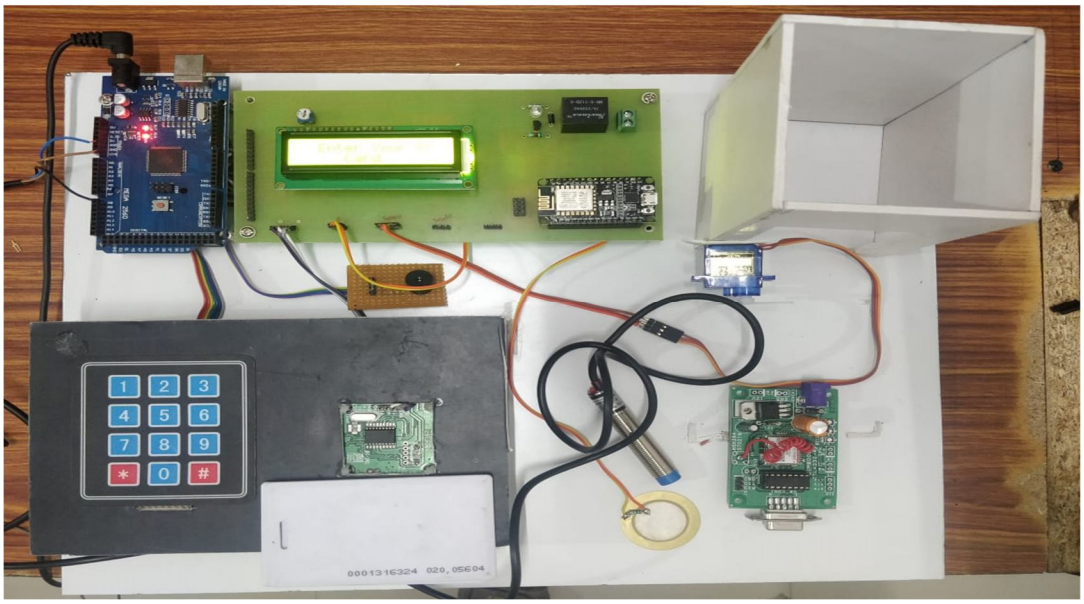


Figure 3 : Implemented proposed system

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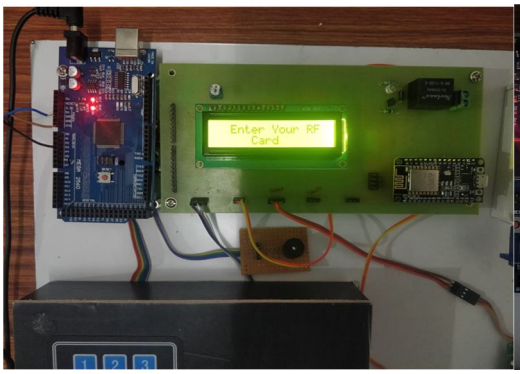


Figure 5:tap the RFID card

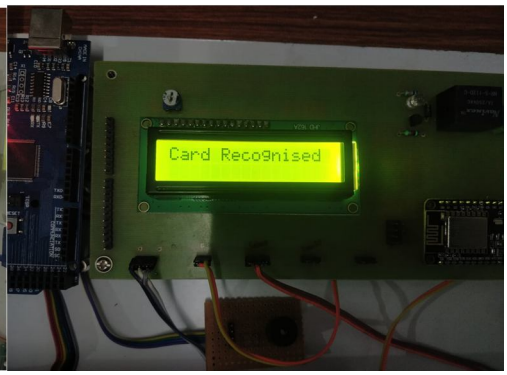


Figure 6: card gets recognized

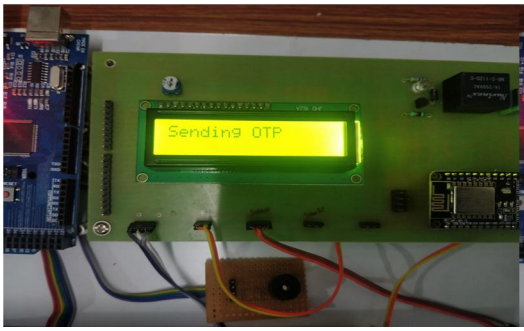


Figure7: sending otp

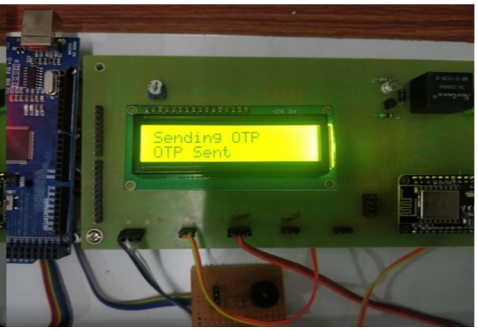


Figure8: otp sent

III. CONCLUSION AND FUTURE WORK

Progressed and practical methodologies used for ATM security have been implementing. It is able to introduce inside the ATM at a number of shrouded spot with the goal that it can't be drawn nearer by thieves. This framework is trademark from numerous points of view from current ATM interruption and burglary control systems. Present frameworks are either over the top costly. The affected framework be trustworthy, low-cost& fitting plan. During future we are equipped for exchange the photos got through Pi camera toward the FTP web server. The photos are saved nearby date and time explanation behind the snap. We can login into the FTP web server and download the photos. During up and coming we fit for exchange the photos got through Pi camera to the FTP web server. The photos be saved nearby date and time explanation behind the snap.

IV. ACKNOWLEDGMENT

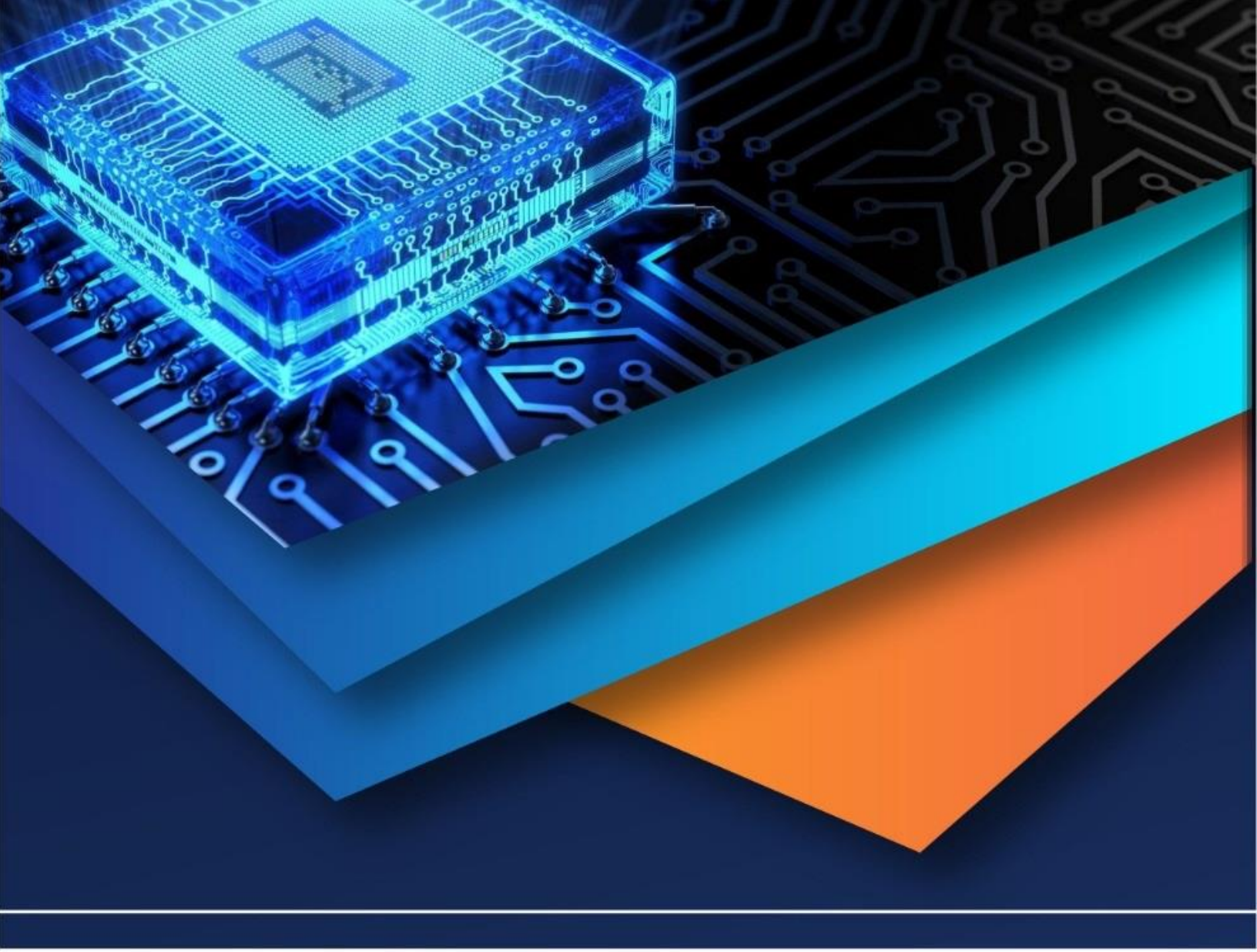
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