iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 **Issue:** XII **Month of publication:** December 2019

DOI: http://doi.org/10.22214/ijraset.2019.12076

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177
Volume 7 Issue XII, Dec 2019- Available at www.ijraset.com

Design and Implementation of Anti-theft System for ATM Machine using Internet of Things (IoT)

Yash Patil[1], Pranjali Dusane[2], Pooja Rao[3], Priyanka Sutar[4]
[1, 2, 3, 4]*U.G. Student, Department of Computer Engineering, SKH – Sapkal Knowledge Hub, Nashik, Maharashtra, India*

Abstract: ***Automated Teller Machines (ATMs) security is the branch of knowledge which focuses on the solutions that delivers various points of protection versus physical and electronic snatch from ATMs and preserve their installations. From the anti fraud secure systems to silent designate systems, integrated ATM video monitoring cameras and ATM monitoring alternative, security authority are always ready to help the people to provide more ATM security and aims high for ATM loss prevention systems.***

The implementation of the system is achieved with the use of Machine-to-machine (M2M) technology. M2M communications is a topic that has newly attracted much curiosity. It yield real-time monitoring and control without the need for human involvement. The objective of M2M platform advises new system architecture for positioning and monitoring applications with wider scope and higher communication ability.

The aim of the proposed work is to implement a low cost stand-alone system based on ESP8266 low cost Wi-Fi enabled chip and Cloud Computing. System offers a robust networking solution with huge span of application areas over internet. The various sensors like vibration, Temperature, accelerometer and sound are used in the system. The setup is proposed for ATM security, comprising of the modules namely, Controlling of shutter lock, web enabled control, sensors and siren control

Keywords: ESP8266; M2M; Cloud Computing; Sensor Network; Embedded System

I. INTRODUCTION

An Automated Teller Machines (ATMs) is an electronic mechanization device that allows customers of financial to perform deals, such as cash withdraw, instalments, transfer money, or achieve account information, at any of the time and without the directly need of the interaction with the bank staff. Now a days ATMs are targets for fraud, robberies and other security breaches. Some methods are clever and tactical.

Some are destructive and dangerous. Method of physical harm include solid and gas bomb as well as removing the ATM from the site and then using other methods to acquire access to the safe. To avoid all these problems Anti-theft system can be used. Anti-theft system implementation is achieved with the use of Machine-to-machine (M2M) communications technology.

The aim of the proposed work is to implement a low cost stand-alone system based on ESP8266 low cost Wi-Fi enabled chip and Cloud Computing.

The purpose of this system is to have an automatic theft detection and alerting system in Automatic Tailor machine and saves energy using automation technique. When any threat found like vibration, knocking, fire, high frequency, system start alerting, sending alerts and closing the door and shutter of ATM machine immediately. This is an cost-effective system can improve security, safety in ATM machines.

II. SIGNIFICANCE OF THE SYSTEM

Now a days Robbery at Automated Teller machines have been increased and most of the robberies occur at midnight to address several robberies problems to provide more security to ATM machine we are proposing the Anti-theft system. An Anti-Theft system is any device or method used to detect unauthorized misuse of the ATM system.

This system uses M2M communication technology which provide positioning and monitoring applications with wider coverage and higher communication efficiency. To detect ATM-thefts it also provides key elements like sensors (vibration, Temperature, accelerometer and sound).

This system is proposed for ATM security, including of the modules namely, Controlling of shutter lock, web enabled control, sensors and siren control. Shutter will immediately lock when an unauthorized misuse is done.so, we introduced an Anti-theft system that is cost-effective and will be helpful for bank organizations..

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177
Volume 7 Issue XII, Dec 2019- Available at www.ijraset.com

III. LITERATURE SURVEY

In this chapter, we will be discussing about the information which is found by studying and researching the field which have an important value in the contribution of the whole project. It will give some basics or theoretical base and can be used as a foundation to successfully achieve the main objective. Most of the literatures are from the related articles, journals, books and previous works of the same fields. These literatures acts as a advice to the plan of this project. The purpose of this system is to have an automatic theft detection and alerting system in Automatic Tailor machine and provides real-time monitoring and control without the need for human intervention..

When any threat found like vibration, knocking, fire, high frequency, system start alerting, sending alerts and closing the door and shutter of ATM machine immediately.

The system implementation is earned with the wide use of Machine-to-machine (M2M) communications technology. The aim of the proposed work is to implement a low cost stand-alone system based on ESP8266 low cost Wi-Fi enabled chip and Cloud Computing.

Unfortunately, customers utilize off premise ATMs are exposed to robbery. In today's world automation and computerization is tremendously and the free systems are accepting ample of popularity. The cyberbanking and cyberbanking activities has become easier with the increase of ATM's and crimes on the cyberbanking organizations are been gradually increasing during the accomplished 12 years analysis has been declared that the crimes associated.

In the year of 2007, 212,530 of takeover and 4,439 of robbery cases are happened, and 269,410 of takeover and 4,409 of robbery cases are happened in year 2010 and as well in the year 2011, 270,109 of robbery and take over had happened.

ATM services are Very Much profitable for banks and the ATMs that are near bank premises are usually so much profitable for banks because they attract a higher number of non-bank customers, who must pay service fees.

Delhi is ranked at 2nd second in the country in ATM fraud in 2018-19 with 179 cases, next to Maharashtra's 233, Reserve Bank of India (RBI) data revealed in July. In Maharashtra, people stray Rs 4.8 crore, while the figure in Delhi was Rs 2.9 crore. Assam, Arunachal Pradesh and Tripura were the only states that didn't report a single case.

Anurag Kulkarni; Mukul Kashmira; Raghav Anand; Mukund Agarwal proposed the system in 2015 for Secured and effective approach for remote monitoring of large network of heterogeneous ATMs.

Patrizia Montefusco, Rosana Casar, Rainer Koelle Tim H. Stelkens-Kobsch Proposed the system in 2016 for Addressing Security in the ATM Environment: From Identification to Validation of Security Countermeasures with Introduction of New Security Capabilities in the ATM System Context.

B.K. Prajwal; M.S. Sreeharsha; R. Raghulan; S.Sumanth Babu; M. Kiran Proposed the system in 2017 for the Detection of unusual events in low resolution video for enhancing ATM security and prevention of thefts.

H Swathi; Suraj Joshi; M.K. Kiran Kumar published novel in 2018 A Novel stated ATM Security System using a User Defined Personal Identification Number With the Aid of GSM Technology.

IV. METHODOLOGY

The main part of system is ESP8266 (microcontroller) which is placed inside ATM centre for capturing real-time theft and controlling purpose. The second module contains accelerometer, Wi-Fi module, RF module, Alarm, and DC motor interfaced with ESP8266. Whenever thieves tries to steal complete ATM machine, then accelerometer sends a notification to ESP8266 and Alarm get start ringing .

The shutter of ATM center is closed automatically. For informing the police about this threat, real time notification will be sent to the nearby police station. Also Glass Door of ATM centre is closed using Solenoid Lock The shutter will only be opened only when the authorized person opens the shutter.

The proposed system unlike other systems uses a number of smart sensors to detect an attack and avert it, like Vibration Sensor, Temperature, Sensor, Sound Sensor, ADXL335 Accelerometer, FSR (Force Sensitive Resistor) to detect movement, heat, change in inclination, sudden speedup, force, and vibration.

The controller used here is the popular ESP8266. The system frequently monitors its surroundings by sensing change in tempreture , force, and aim of the ATM using the sensors.

ATM Tracker is a fully automatic solution that quitely and immediately advises local law fullfillment of the pull-out crime as it occurs. ATM Tracker will track the ATM, cash and culprit during their run away. This highly constructive solution has recovered 95% of all stolen ATM cash and has led to criminal concern. If a Theft Occurs ATM Tracker automatically activate a silent theft alert upon motion.

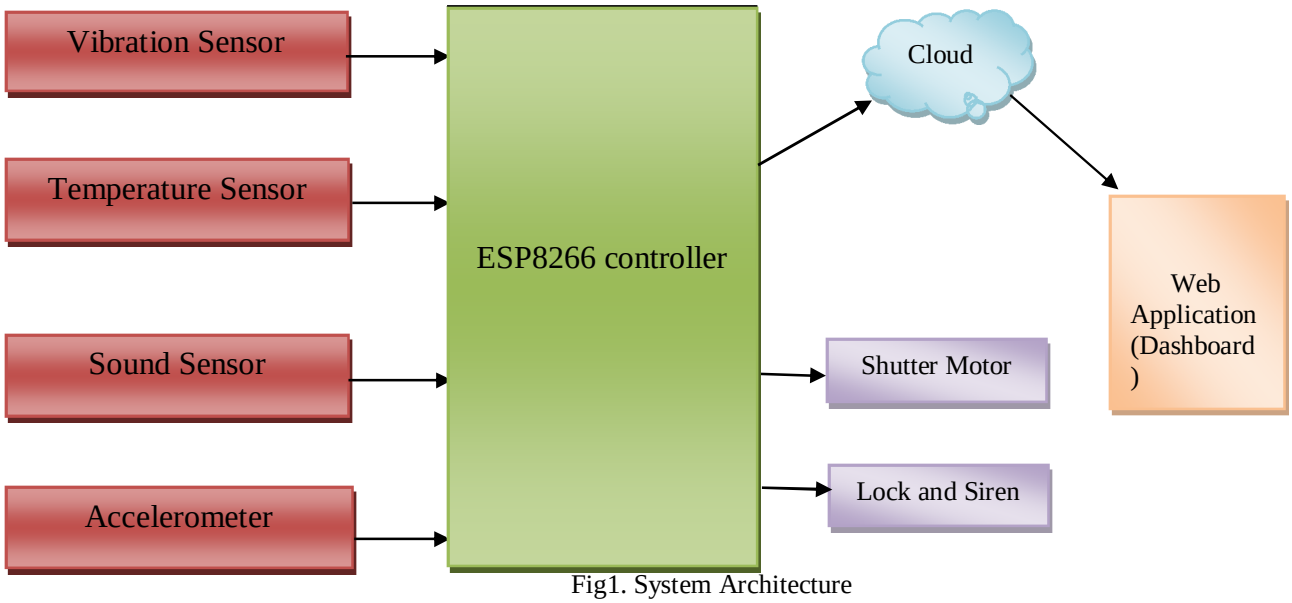


Fig1. System Architecture

V. EXPERIMENTAL RESULTS

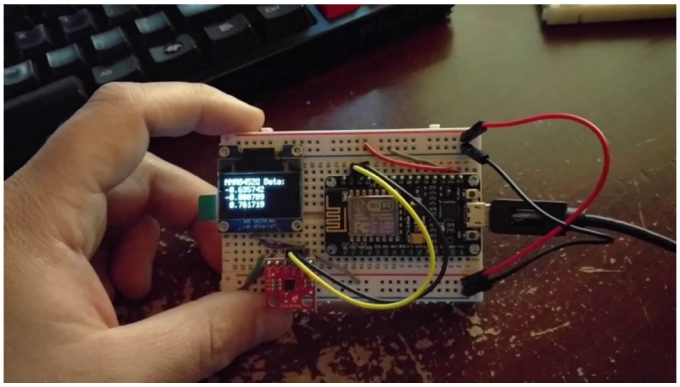


Fig 2. ESP8266

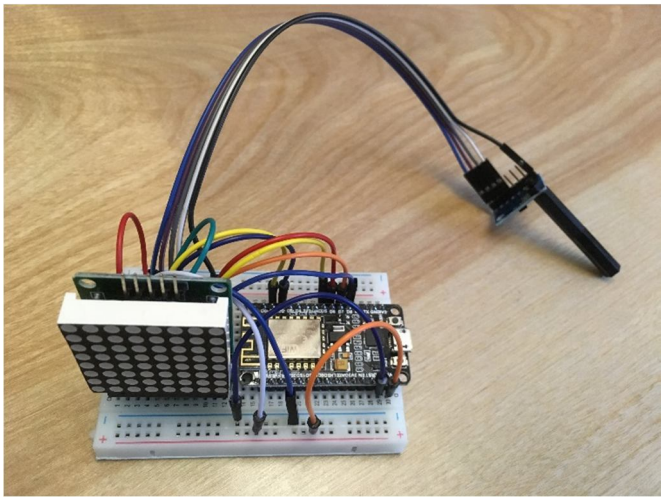


Fig1. ESP8266 interface with vibration sensor.

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177
Volume 7 Issue XII, Dec 2019- Available at www.ijraset.com

VI. CONCLUSION AND FUTURE WORK

With the wide use of internet this system is focused to implement the internet technology to establish a system which would communicate through internet for ATM secure monitoring system. Internet of things is expected to be the best rule the world in various fields of digital world.

In future we will be adding features such as metal detection like gun ,knife ,gas cutter etc at the entrance door.

Whenever the theft occurs at that time our dashboard user interface will be consisting of button by clicking on it . ISP/Telecom company will be receiving the request and it will send us the information regarding the mobile users and calls made by them.

REFERENCES

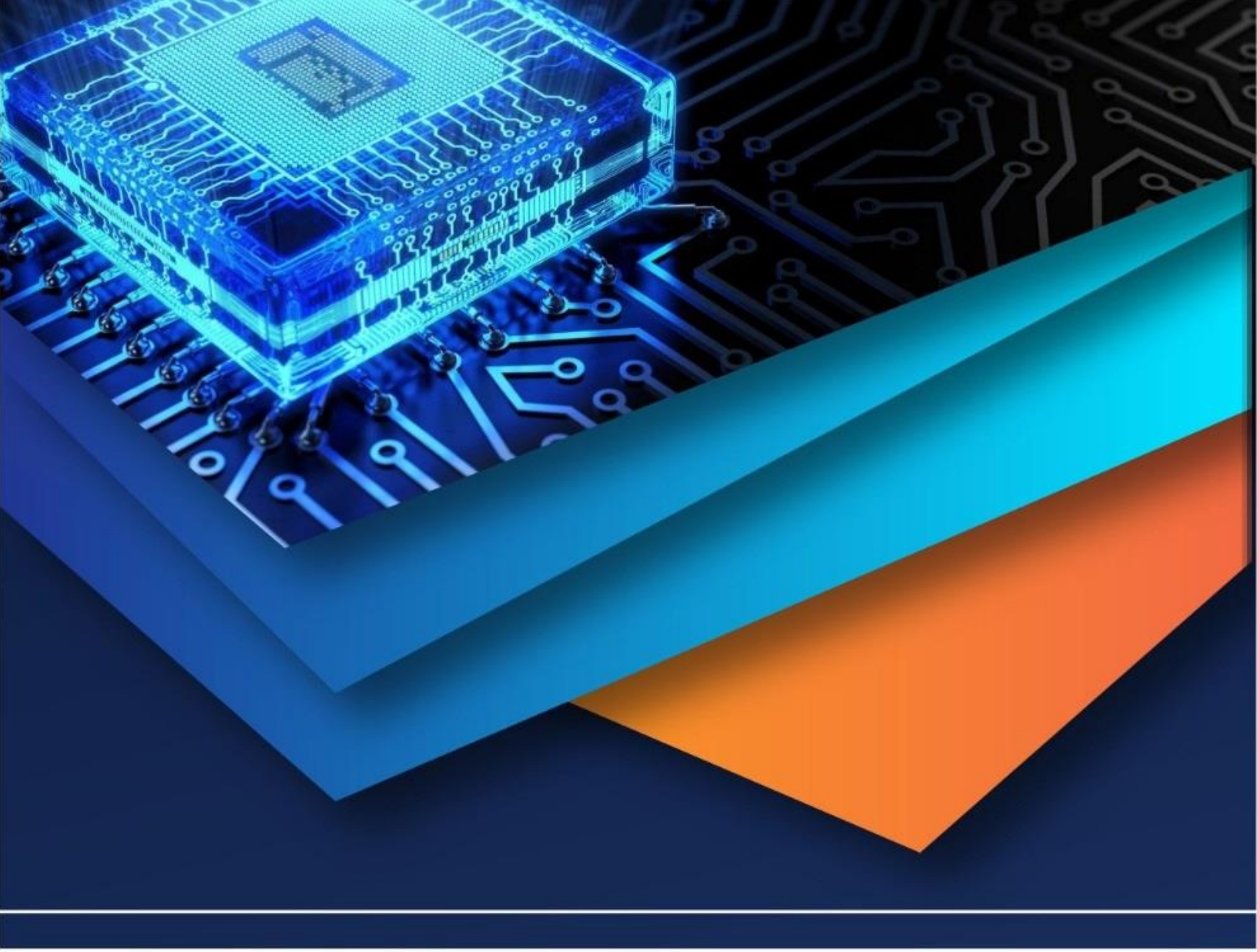
[1] Kannamma, M. Barathi, B. Chanthini, and D. Manivannan. "Controlling and monitoring process in industrial automation using Zigbee." Advances in Computing, Communications and Informatics (ICACCI), 2013 International Conference on. IEEE, 2013.

[2] Kim, Jaewoo, Jaiyong Lee, and J. Yun. "M2M service platforms: survey, issues, and enabling technologies." (2013): 1-16.

[3] Dujak, Mico, et al. "Machine-to-machine communication as key enabler in smart metering systems." Information & Communication Technology Electronics & Microelectronics (MIPRO), 2013 36th International Convention on. IEEE, 2013.

[4] Kannan, P, and Ms P. Meenakshi Vidya. "Design and Implementation of Security Based ATM theft Monitoring system.".

[5] Ajaykumar M (2013). “Anti-Theft ATM Machine Using Vibration Detection Sensor” International Journal of Advanced Research in Computer Science and Software Engineering, pp: 23-28.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY