

Cloud Based Intruder Security System

Arun Francis G^[1], Manikandan S^[2], Sangeeth Thanga Dharsan .A^[3], Shastiyappan R^[4], Ravi K^[5],
T.Thiruneelakandan^[6]

[1] Assistant Professor, Department of Electronics and Communication Engineering, Karpagam College of Engineering, Coimbatore, India.

[2] Assistant Professor, Department of Electronics and Telecommunication Engineering, Karpagam College of Engineering, Coimbatore, India.

[3] Student, Department of Electronics and Communication Engineering, Karpagam College of Engineering, Coimbatore, India.

[4] Student, Department of Electronics and Communication Engineering, Karpagam College of Engineering, Coimbatore, India.

[5] Student, Department of Electronics and Communication Engineering, Karpagam College of Engineering, Coimbatore, India.

[6] Student, Department of Electronics and Communication Engineering, Karpagam College of Engineering, Coimbatore, India.

Correspondence: ja.arunji@gmail.com,

Abstract— The project presents a complete security system for home, offices and data centers to prevent Intruders and trespassers who are the major threats of crime now a days. The existing security systems like security agent, CCTV monitoring or some other form of security service contains many unsecure and these all contains many loop holes . The proposed Cloud based security system comprises of Cloud service and embedded systems. This system provides complete data security and a remote tool to monitor and manage the system. This idea of universal transmission for Security system by using finger print, Key Pad etc, also popularly known as (IoT) Internet of Things, can leads to the development of innovative origination. Internet of things (IoT) environment has made one-step further movement in the way of widespread connectivity. It is paramount to find

viable technologies that will secure the lives of humans as threat to tackle this kind of problem. With the help of the latest technology, it is possible to secure people's lives, industries, schools, organizations, and homes using an alarm security system that will monitor, guide and protect to make life easier. This paper will works on the security alarm system from its beginning, its advancement in technology using internet of things (IoT) challenges faced using the internet in the security alarm system and its security alarm.

Index Terms— Arduino UNO, LCD, IR Sensor, PIR Sensor, Keypad, Finger Print, ESP 8266, Servo Motor, Buzzer, IoT.

I.INTRODUCTION

The basic security system is generated from its name it is literally a means or method by which something is secured through a system of

interworking components and some devices. In this instance, home security systems which are networks of integrated electronic devices working together with a central control panel to protect against burglars and other potential home intruders shows an advanced security alarm system and its various components it consists of today, our home monitoring and alarm security systems have become common. One of the motives is the increase in crimes, theft, and robbery in the world today.

Many of our homes, industries, schools, and organizations are invaded mostly by forcing through a criminal entry. Circumstances have shown the most criminals are usually cut off by the help in simple existing of an alarm security in our homes, hospitals and organizations. Criminals usually enter far more defenseless constructions compared to those guarded by security alarm. The development of the security alarm systems started with the creation of man. To give information, human beings implement a form of a signal, shout, and sound. It was replaced with the help of the clapping of hands and to notify society or to a certain message during the early periods of some African societies.

All those methods of warning are fundamental, unreliable and unsystematic. Undeveloped methods of producing security alarm systems were changed by programmed security alarm systems in the late eighteenth century.

These types of electronic security alarm usually work without human energy. When the modern security alarm senses a positive signal which may be a sign of intrusion or breakage, it normally gives a warning of a very high sound or sends an alert to the owner subject to the type of security. The earliest security alarm system was developed by a man named William F. Channing. Later on an electrical electronics engineer, Mr. Moses G. Farmer invented the construction. This system uses automatic indicator boxes to label the position of the outbreak fire and was first launched in Boston, United States of America. The development of this alarm system by Dr. William was then followed by the improvement of various stylish and difficult fire and intruder security alarm system technologies that are so many to count.

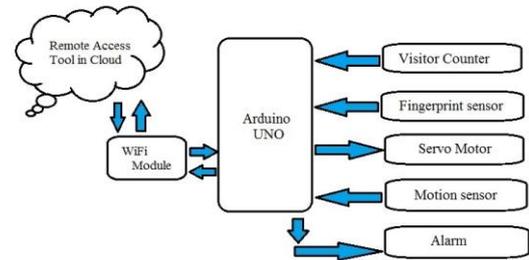
The most significant security system technologies is the use of remote signaling thief security alarm. This type of security alarm system was designed in the early times. However, organizations and industries are based on the supply of security services that usually come in imperfect designs to keep burglars and thugs away from the environment that are not built for them. An innovative group of electronic security alarm with complexity at various levels. With the latest crime rates in the world, it has become very essential to safeguard buildings and property with the protected stages of various advanced security

alarm devices. The prices of such kinds of security alarm devices depend on the technology . Those alarm security system are characterized by present electronic security alarm systems. Nowadays modern security alarm are housebreaker alarms, threat alarms, industrial alarms, speed limit alarms, and anti-theft vehicle alarms but this security alarm will make a change.

II. PROPOSED SYSTEM

The more crime rate is due to urbanization, unemployment, poverty, economic recession, and social inequality, which will bring chaos to the country. Most of the crimes that are usually done are robbery, theft and housebreaks, but the most common one done today is armed robbery. This disturbing increase rate of crime in the world today, thus, threatened the life and properties of the people. A security alarm system should be installed as a standard device in our homes or the environments needed to be secure. The need for an operative and cost-effective system that caters to catastrophes and accomplishes safety concerns while one is away from their home is essential. Cloud Based Intruder security System based on Paas cloud service and Embedded systems to prevent specified area from Intruders and trespassers.

III. BLOCK DIAGRAM DESCRIPTION



OPERATION

The intruder alarm security is a cycle, from a automated circuit loop that close with an alarm and its output, or an indication to inform the danger. They are a central control box that normally observer different position indicators and the protections that give alarm or notify . Some of the intruder's security alarms system normally function on the conception of a magnetic contact . For those types of security systems working with the sensors, these devices are usually position at any entering of the industries, organizations, and building. In this time , the sensor will activate an alarm if the device gets a signal. The motion detection, the ultrasonic sensor is normally used; the point indicator can be used in the criminal alarm, theft or illegal individuals at certain points such as doors or windows . When a environment needs to be look over the awareness of the burglar in environment is used, which is executed with the help of ultrasonic

sensors and is normally fixed .Currently,closed-circuit television (CCTV) shown in figure two below, has been combined in the thief security alarms system to recognize the existence of illegal personnel.

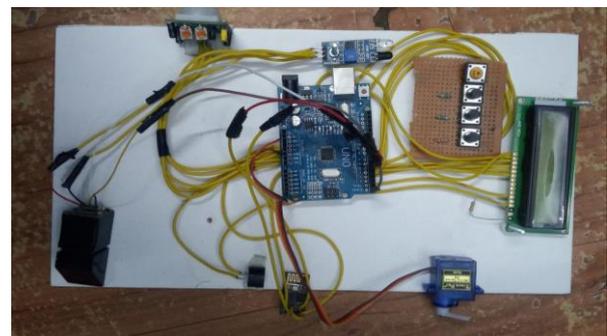
SOFTWARE METHODOLOGY ADOPTED

Prototyping Model has been used for software development according to which a throwaway prototype of the proposed system, based on the currently known requirements, is given to the user so that he has a fair idea about how the proposed system is going to be like. This will help him in deciding the interface, input and output requirements. It can be easily adjudged that inputs and outputs are big in number, can increase exponentially and may create a big chaos if not restricted properly. As the user spends some time on the prototype, he will become more precise about his own input output Requirements. This prototype will provide him with an environment analogous to the proposed system's environment. Due to object oriented support in .NET, various concepts (like reusability, polymorphism, isolation etc.) are already there but for the efficient management of system components, Component based Software Engineering will also be exercised which will help in a resultant library of components, the benefit of which will be reusability and fast development. Due to lack of hierarchical structure in object oriented approach,

there is no meaning of Bottom-up or Top-down testing. Testing will begin from the rudimentary levels of the system and will move towards higher level components, which will be based on design phase rather than coding phase Words.

IV. SIMULATION AND RESULTS

Whenever a person needs to enter the area, he/she has to enter his fingerprint or should enter the password. Then the sensor reads the input from the user and sends to the arduino, after the input matches the person can enter the area. And a motion sensor is fitted all over the area, so that if anyone tries to enter the area without permission from authority the sensor sends signal to arduino and the alarm will be sounded and the it will be alerted through his remote access. A visitor counter is fitted in the area so that people entering and leaving the area can be monitored. A servo motor is fixed to the doors to control the doors remotely and if there is some break through detected the doors will be shut down automatically.

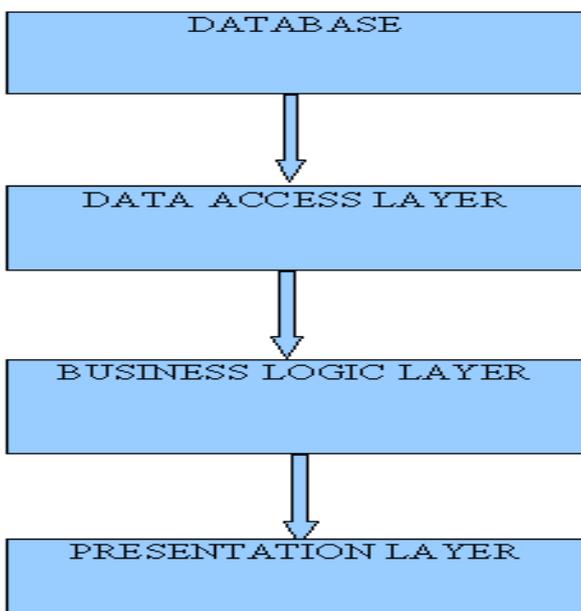


This project is divided into four layers of the logical architecture of the project. The users of the project interact with presentation Layer.

The Business Logic Layer (BLL) provides the calculation of the requirements.

The Data Access Layer (DAL) is the middle layer which communicates with the database

These layers are as follows:-



V. CONCLUSION

Compared to other security systems our cloud based Intruder security system is more effective and secure and also it can be remotely monitored and accessed from anywhere so that it is easy to safeguard. Even though Intruder detection and

security technology is being developed rapidly, there are still some problems to be solved with installing cost and maintenance cost. The objective of the review is to give awareness of the advancement in technology using internet of things (IoT) of the security alarm and to create awareness related to the security measures and one has to take regularly due to increasing in break-in and abduction in the world nowadays and the challenges faced when the security system is linked to an internet and how to protect the whole cyber criminals attacks. This research reviewed some study on security alarm system from how it is originated which has not been done in most of the research papers and its advancement in technology aspect and list the importance of installing the security alarm system in the environment we need to be secured . The research also fills the gap for the need of installing a security alarm system against invasion in our homes today and the area needed to be secure. Especially in technology using the internet of things (IoT),to get a security guard or hired someone to be watching the environment needed to be guarded.

REFERENCES

- [1]<https://www.safewise.com/homesecurityfaq/how-do-security-systems-work/>
- [2] Olarewaju .I. K, Ayodele, O. E, Michael. F. O, Alaba. E. S, Abiodun. R. O, 2017. "Design and

Construction of an Automatic Home Security System Based on GSM Technology and Embedded Microcontroller Unit”, American Journal of Electrical and Computer Engineering, Vol. 1, No. 1, pp. 25-32, Doi: 10.11648/j.ajece.20170101.14

[3] Zungeru. A. M, Kolo. J. G, Olumide. I, September 2012. “A Simple and Reliable Touch Sensitive Security System”, International Journal of Network Security & Its Applications, ISSN 0975- 2307, Volume: 4; Issue: 5; pp. 149-165, DOI: 10.5121/ijnsa.2012.4512

[4] Arun Francis G, “SIMULATION OF DENSITY BASED TRAFFIC LIGHT CONTROL USING RF TRANSCEIVER”, presented at the International Conference on Electronics, Communication and Computing Systems (ICECCS\2021), Coimbatore, India, May 2021. doi: 10.5281/zenodo.5075477.

[5] British Security Industry Association (BSIA), “Journal on security system section strategy for intruder alarm system”, Page 1-3, April 2005. Accessed at <https://www.thenbs.com/PublicationIndex/documents?Pub=BSIA>

[6] Arun Francis G, “Simulation of Charging Time Controller using Arduino”, presented at the International Conference on Electronics, Communication and Computing Systems (ICECCS\2021), Coimbatore, India, May 2021. doi: 10.5281/zenodo.5075372

[7] M. A. Kumar and G. A. Francis, "Survey on various advanced technique for cache optimization methods for risc based system architecture," 2017 4th International Conference on Electronics and Communication Systems (ICECS), Coimbatore, India, 2017, pp. 195-200, doi: 10.1109/ECS.2017.8067868.

[8] Francis, Arun & Arulselvan, M. & Elangkumaran, P. & Keerthivarman, S. & Kumar, J.. (2019). Object detection using ultrasonic sensor. International Journal of Innovative Technology and Exploring Engineering. 8. 207-209.

[9]“HistoryofSecurityAlarms”,

<http://www.icee.org/organization/history>

center/fire alarm.html [6] Koenig. J.A, Taylor. L, “Perimeter Security Sensor Technology handbook”, Electronic Security Systems Engineering Division, North Charleston, U.S.A, pp. 67-86.

[10] Karri. V, Daniel Lim. J. S, 2005, “Method and Device to Communicate via SMS After a Security Intrusion”, 1st International Conference on Sensing Technology, Palmerston North, New Zealand, November 21 -23.

[11] ARUN FRANCIS G, “SIMULATION OF IoT BASED HOME AUTOMATION USING ARDUINO”, presented at the International Conference on Electronics, Communication and Computing Systems (ICECCS\2021), Karpagam

College of Engineering, Coimbatore, India, May 2021. doi: 10.5281/zenodo.5075580.

[12] Bing. Z, Yunhung. G, Bo. L, Guangwei. Z, Tian. T, 2001, "Home Video Security Surveillance", InfoTech and Infonet, Proceedings, ICII Beijing. International Conference, vol. 3, pp. 202-208.

[13] Y. Neelaveni and G. A. Francis, "Magneto-electric dipole array with optimized antenna parameters," 2015 Online International Conference on Green Engineering and Technologies (IC-GET), Coimbatore, India, 2015, pp. 1-4, doi: 10.1109/GET.2015.7453855.

[14] Mahmud. S.A, Mohammed. G.A, 9, July-Dec 2006, "Development of a Simple Sound Activated Burglar Alarm System" Leonardo Journal of sciences. Issue.

[15] Elfasakhany. A Hernández. J, García. J. C, Reyes. M, Martell. F, December 2011. "Design and Development of a House-Mobile Security System", Scientific Research Vol.3 pp.1213-1224 DOI:10.4236/eng.2011.

[16] Khan. S. R, Al Mansur. A Kabir. A Jaman. S, Chowdhury. N, March – 2012, "Design and Implementation of Low-Cost Home Security System using GSM Network", International Journal of Scientific & Engineering Research Volume 3, Issue 3.

[17] Francis, Arun & Wilfred, M.W. & Sekar, R.. (2019). Health monitoring with alcohol detection

and ignition control system using iot. International Journal of Innovative Technology and Exploring Engineering. 8. 203-206.

[18] Kaur. S, Singh. R, Khairwal. N, and Jain P, July 2016, "HOME AUTOMATION AND SECURITY SYSTEM" Advanced Computational Intelligence: An International Journal (ASCII), Vol.3, No.3, pp. 17-23.

[19] Arun Francis G., Lexmitha S., Aruna Devi N., Swathika C. K., "Embedded System based Smart Automation for Elderly and Disabled People", Annals of RSCB, pp. 9909–9917, Apr. 2021.

[20] Arun Francis G., Kanishya A., Lalithambiga M., Niveka S., Nivedha E., "Density based Traffic Light Control Using Retransmitted and Receiver", Annals of RSCB, pp. 9895–9901, Apr. 2021.

[21] Arun Francis G., Chandru L., Arun Kumar B., Nithesh Kumar R., Narendran S., "Charging Time Control Using Arduino", Annals of RSCB, pp. 9886–9894, Apr. 2021.

[22] Arun Francis G., Mr. S. Manikandan, Sundar V., Gowtham E., "Home Automation Using Iot", Annals of RSCB, pp. 9902–9908, Apr. 2021.

[23] Francis, Arun & Kumar, Arun & Kumar, Nithesh. (2021). Simulation of Charging Time Controller using Arduino.

[24] Hasan. R, Khan. M. M, Ashek. A Rumpa. I. J, 2015, "Microcontroller Based Home Security System with GSM Technology" Open Journal of Safety Science and Technology, Vol.5, pp. 55-62,

Published Online in SciRes.
<http://www.scirp.org/journal/ojsst>

[25] Vignesh M, Kavin T P, A. F. G. G. C. R. K. S. (2020). Accident Detection and Alerting System Using GPS & GSM. International Journal of Advanced Science and Technology, 29(3), 3598 - 3601. Retrieved from <http://sersc.org/journals/index.php/IJAST/article/view/5037>

[26] Nwalozie. G.C, Aniedu. A.N, Nwokoye. C.S and Abazuonu. I.E, June- 2015, "Enhancing Home Security Using SMS-based Intruder Detection System", International Journal of Computer Science and Mobile Computing, Vol.4 Issue.6, pg. 1177- 1184, Available Online at www.ijcsmc.com.

[27] S.Manikandan, T.Karthik, and G.Arun Francis, "Vector Monitoring Concurrent BIST Architecture using Modified SRAM Cells", International journal of science and advance research in technology, Vol. 1 No.9 ,pp.14-17, Sep 2015.

[28] Francis, Arun. (2020). Home Automation Chat Bot using IOT. Waffen-und Kostumkunde. 11. 92-96.

[29] Arun Francis G., Ashok Kumar M., Cyril Silvester A. K., Kamaleshwarran A. P., Kumaravel B., "Pulsed Electric Field based Vegetable Fresher", Annals of RSCB, pp. 9918–9926, Apr. 2021.

[30] Adeline. I. N, Innocent. E. O, Nkechi. A, 1999- 2015, "Insecurity Question and Crime Statistics in Nigeria: A Case of Anambra State, Specialty Journal of Humanities and Cultural Science, 2017, Vol, 2 (1): pp.30-45. Available online at www.sciarena.com

[31] Arun Francis G, Dharani S K, Manikandan P, Monica RJ and Vaishahi S K, "IOT Based Accident Identification and Alerting System", International Journal of Pure and Applied Mathematics, vol.118, No.20,pp.547-551,2018.

[32] Govinda K, Sai. P. K. and Sai. S 2014, "Intrusion detection system for smart home using laser rays International Journal for Scientific Research & Development" (IJSRD).

[33] Karri. V, Daniel. L. J. S, 2005, "Method and Device to Communicate via SMS after a Security Intrusion 1st International Conf. on Sensing Technology Palmerston North New Zealand", pp21-23.

[34] ARUN FRANCIS G, "SIMULATION OF EMBEDDED AND IoT BASED SMART AUTOMATION SYSTEM FOR ELDERLY AND DISABLED PEOPLE", presented at the International Conference on Electronics, Communication and Computing Systems (ICECCS\2021), Karpagam College of Engineering, Coimbatore, India, May 2021. doi: 10.5281/zenodo.5075495.

[35] Arun Francis G, "Simulation of Charging Time Controller using Arduino", presented at the

International Conference on Electronics,
Communication and Computing Systems
(ICECCS\2021), Coimbatore, India, May 2021.

doi: 10.5281/zenodo.5075372.

[36] Jayashri. B, Arvind. S, 2013, "Design and Implementation of Security for Smart Home based on GSM technology International Journal of Smart Home".

[37] Sowjanya. G, Nagaraju. S, 2016, "Design and Implementation of Door Access Control and Security System Based On IoT Inventive Computation Technologies (ICICT), International Conference on Inventive".

[38] Mr.G.Arun Francis, Dr.P.Karthigaikumar, Mr.G.Arun Kumar (2020) FACE RECOGNITION SYSTEM FOR VISUALLY IMPAIRED PEOPLE. Journal of Critical Reviews, 7 (17), 2760-2764. doi:10.31838/jcr.07.17.345

[39] Cristian .C, Ursache. A Popa. D. O and Florin. P, 2016, "Energy efficiency and robustness for IoT: building a smart home security system Faculty of Automatic Control and Computers University Politehnica of Bucharest, Bucharest, Romania".