e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

SMART HOME SECURITY WITH AUTOMATIC PHONE CALLING SYSTEM

Ashish Kumar Gautam*1, Priyanka Kumari*2, Rohinee Pathak*3

*1,2,3Department Of MCA, SAM Global University, Bhopal (M.P.) India.

ABSTRACT

The final year project aims at exposing the students undergoing higher technical studies to the thoughts and logic that must be developed to ensure that one is able to integrate his/her ideas into something concrete. This generally is initiated by the inception of an idea or a concept, which not only aims at developing a product (Hardware or Software), but also the in-depth study of the earlier existing products in the same category and their deficiencies. Accordingly, an approach is taken to propose a solution, which is better than previous ones in one respect or the other.

I. INTRODUCTION

The Home security has been a major issue where crime is increasing and everybody wants to take proper measures to prevent intrusion. In addition, there is need to automate home so that the user can take the advantage of technological advancement. This project presents a model that will provide security to their home, office or cabin etc via SMS using GSM technology. Keeping in view the rapid growth of wireless communication we are inspired to work on this project. The idea behind this project is to meet the upcoming challenges of the modern practical applications of wireless communication and to facilitate our successors with such splendid ideas that should clear their concept about wireless communication and control system. The applications of SMS/ma security system are quite diverse. There are many real life situations that require control of different devices remotely and to provide security. There will be instances where a wired connection between a remote appliance/device and the control unit might not be feasible due to structural problems. In such cases a wireless connection is a better option.

II. PROBLEM DEFINITION AND REQUIREMENT ANALYSIS

PROBLEM DEFINITION

With all the necessary background research completed it became clear what basic design components the entire system would require. First we needed the power to be supplied to the designed model which will turn on the components. Then, if a person enters house from outside the window or enters wrong password for consecutively 3 times then microcontroller will generate the message and will send the message to the authorized user using the GSM modem. In case, the temperature inside the house increases beyond limits then also Arduino will perform the same operation.

REQUIREMENTS

ARDUINO BOARD WITH ATMEGA 328 • GSM 300 • SIM CARD-VODAFONE • OP AMP-LM 324 • IR SENSORS • IC BASES • MOBILE PHONE • TEMPERATURE SENSOR- LM35 • RIBBON WIRES • TRANSFORMER • BUTTON SWITCHES • VOLTAGE REGULATOR-7805 CAPACITORS • PCBs • LEDs • 2 PIN CORD • WOODEN BLOCK • FEVICOL • GLUEGUN • DVD TRAY • ADAPTER- 12V • CPU FAN • RESISTORS • HEAT SINK • PIN WIRES • SOLDER IRON • SOLDER WIRE • DIODES.

III. DESIGN AND IMPLEMETATION

The Microcontroller based system is continuously watching over the security issues of your house, if any mishap condition occurs it will sense and send a message to your mobile. The system is composed of the microcontroller based wireless sensor network center node with GSM module, data collecting node, device control node and mobile phone. The wireless sensor network data collecting node module is connected with Infrared Detector, Temperature Sensor. When the IR finds that some people intrude into the house or when the temperature sensor detects too high indoor temperature, the data collecting node will send encoded alarm signal to the wireless sensor network center node through the wireless sensor network established in home. Once the Wireless sensor network center node receives alarm signal, it will send alarm short message to the users through the GSM module and GSM network immediately. When the temperature sensor detects too high indoor temperature and at the same time, the sensors will send encoded alarm signal to the home control

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

centre through the wireless sensor network established in home. Once the wireless control centre receives alarm signal, it will send alarm short message to the users through the GSM module and GSM network immediately.

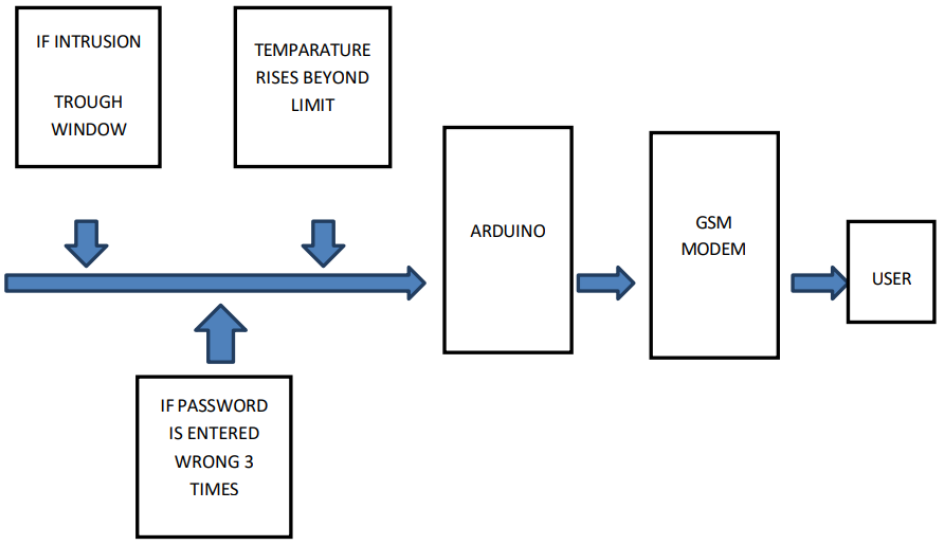

Figure 1: Funtional Decomposition.

Table 1: Funtional Decomposition

If any one of following 3 cases: ➔intrusion through window ➔Wrong password entered thrice ➔temperature rises beyond limit Then,	This output will be fed to Arduino.	Arduino, with help of GSM modem and a SIM card will send a message accordingly.	The owner of the registered number will receive a message and then She/he can rectify the situation.

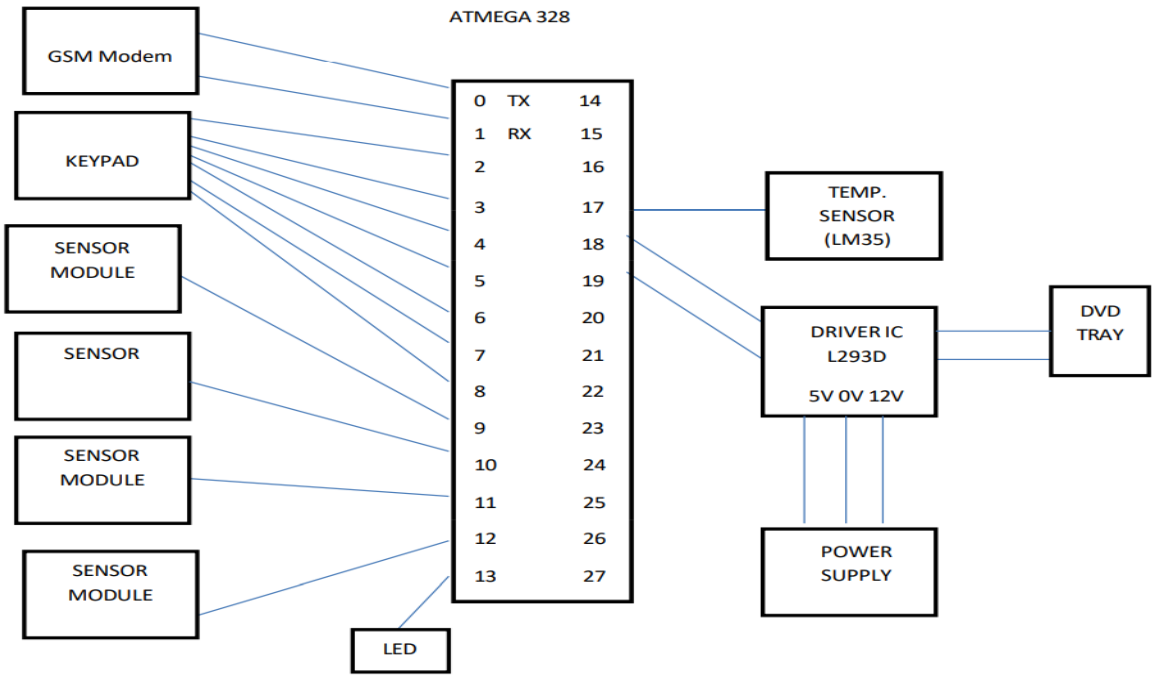

Figure 2: Circuit Diagram.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

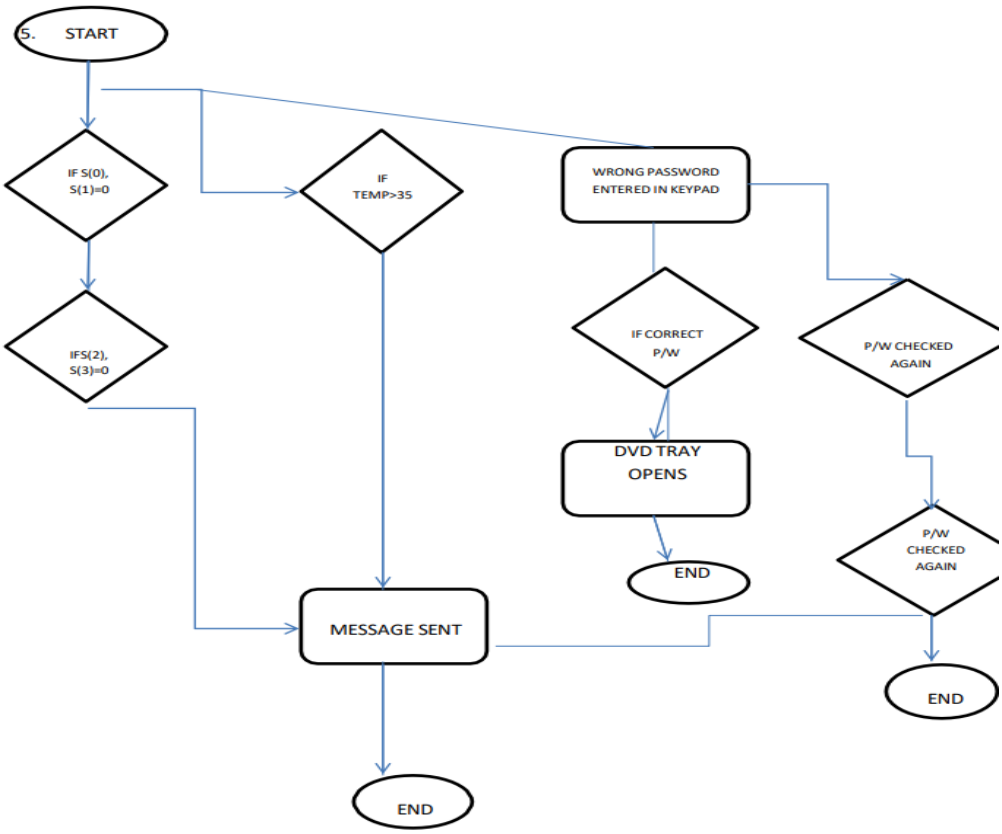

Figure 3: Flow Chart

IV. TESTING AND DEPLOYMENT

The various components used in designing of the model was verified with help of the verification process we took out. These components include:

 KEYPAD IR Sensors GSM Modem ARDUINO (During the verification of Hex pad, IR sensors, GSM Modem) LM324 (During the verification of IR Sensors) DVD tray (During the Keypad verification)

V. RESULTS AND DISCUSSION

Automated security systems play an important role of providing an extra layer of security through user authentication to prevent break-ins at entry points and also to track illegal intrusions or unsolicited activities within the vicinity of the home (indoors and outdoors). There has been much research done in the design of various types of automated security systems. Sensor-based systems that rely on contact or movement sensors or contact-based systems such as fingerprint and palm print scan or keypad activation that require substantial amount of contact with an input device. Many security systems are based on only a single system. In an event of system failure or intrusion of the user authentication, there is no backup system to monitor the home continually. This shortcoming can be dealt with using multiple security systems (for multi - layered security systems). However, multi-system implementations will definitely be more demanding in terms of computational cost and organization.

VI. FUTURE ENHANCEMENTS

The future implications of the project are very great considering the amount of time and resources it saves. The project we have undertaken can be used as a reference or as a base for realizing a scheme to be implemented in other projects of greater level such as weather forecasting, temperature updates, device synchronization, etc. The project itself can be modified to achieve a complete home security System which will then create a platform for the user to interface between himself and his household. Automated security systems play an important role of providing an extra layer of security through user authentication to prevent break-ins at entry points and also to track illegal intrusions or unsolicited activities within the vicinity of the home (indoors and outdoors). There has been much research done in the design of various types of automated security systems. Sensor-based

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:11/November-2024 Impact Factor- 8.187 www.irjmets.com

systems that rely on contact or movement sensors or contact-based systems such as fingerprint and palm print scan or keypad activation that require substantial amount of contact with an input device.

Today, with advancement in science and technology, home automation has become one of the fastest developing application-based technologies in the world. The idea of comfortable living in home has since changed for the past decade as digital, vision and wireless technologies are integrated into it. Intelligent homes, in simple terms, can be described as homes that are fully automated in terms of carrying out a predetermined task, providing feedback to the users, and responding accordingly to situations. In other words, it simply allows many aspects of the home system such as temperature and lighting control, network and communications, entertainment system, emergency response and security monitoring systems to be automated and controlled, both near and at a distance.

VII. CONCLUSION

The project we have undertaken has helped us gain a better perspective on various aspects related to our course of study as well as practical knowledge of electronic equipment and communication. We became familiar with software analysis, designing, implementation, testing and maintenance concerned with our project. The extensive capabilities of this system are what make it so interesting. From the convenience of a simple cell phone, a user is able to control and monitor virtually any electrical devices. This makes it possible for users to rest assured that their belongings are secure and that the television and other electrical appliances was not left running when they left the house to just list a few of the many uses of this system. The end product will have a simplistic design making it easy for users to interact with. This will be essential because of the wide range of technical knowledge that homeowners have.

ACKNOWLEDGEMENTS

We are pleased to acknowledge our sincere thanks to Board of Management of SAM GLOBAL UNIVERSITY for their kind encouragement in doing this Interdisciplinary project and for completing it successfully. We are grateful to them. We convey our thanks to Dr. Subodhini Gupta, Head of the Department, Department of Computer Application for providing us necessary support and details at the right time during the progressive reviews. We would like to express our sincere and deep sense of gratitude to our Interdisciplinary Project Guide Rohinee Pathak, Department of Computer Application for her valuable guidance, suggestions and constant encouragement paved way for the successful completion of our project work. We wish to express our thanks to all Teaching and Non-teaching staff members of the Department of Computer Application who were helpful in many ways for the completion of the project.

VIII. REFERENCES

[1] http://www.seminarprojects.com/
[2] http://www.instructables.com/
[3] http://www.wikipedia.com/
[4] http://www.arduino.cc/
[5] http://www.youtube.com/