Literature Survey on Theft Security System Technologies for various Applications.

Sopan D. Borale[1], Priyanka B. Susar[2], Pragati M. Dhabhade[3], Mahesh S. Kholgade[4] Ashish V. Harkut[5]
Final & Third year students of Electronics & Telecommunication Engg.[1, 2, 3, 4], Pankaj Laddhad Institute of Technology and Management Studies,Buldana[1, 2, 3, 4],Assistant Professor[5]
Email: *sopanborale@gmail.com[1]*, *priyanka.susar111@gmail.com[2]* , *pragatidabhade@gmail.com[3]* ,
maheshkholgade@gmail.com[4],harkut.ashish@gmail.com[5]

Abstract-
The world demands everywhere a word called Theft Security because of the unrequited things happening every day. Security is demanding everywhere like home for prevention it from thieves, bank locker system security, research labs security system, vehicle security system, etc. A better solution to achieve these securities is Security system using Embedded System. This paper provides a literature survey on the all types of security system achieved making use of embedded system. Here it is proved that embedded system provides exact and more secure solutions for every problem making it an effective system.

Keywords- Security, Home, Software, Border etc.

1. Introduction:

Researchers are continuously working beyond their ability to develop best security system for the required application. This paper provides an overview on the different technologies developed for security system for various applications. The security is demanded mainly for home for preventing the house from thieves and unfortunate accidents, as well as it is effectively required for Bank locker system, Research Labs where profound information and research is preserved. Vehicle security system kept in market circumstances is a serious problem now a day [1].

Embedded solution have proved itself everywhere, when the problem arises a solution is ready with the help of embedded system. In this paper different technologies are discussed using embedded system for security. Initially, embedded home security system is discussed with the help of some sensors used for detection purpose in section 2. Palm Vein technology is discussed for research lab security system in section 3. Similarly, Mobile based car security system, GSM and RFID based bank locker system and finally border security system is explained in further sections [2].

2. Embedded Home security system:

We all are familiar with the today's economical condition of the different countries. Most of population is suffering from the tough economic times so due to this the burglary is increases rapidly and this affects the security of our homes. So by this point of view the home security system is needed. To overcome this security related aspect a new technology is invented or design called as Embedded Home Security System [3].

This is an embedded based application system consisting of embedded circuitry as shown in fig.1 [4]. The different components of home security system are as follows

- Arduino Mega
- Computer
- Parallax PIR
- Normally Closed Magnetic switch
- Sky link Universal garage door remote control
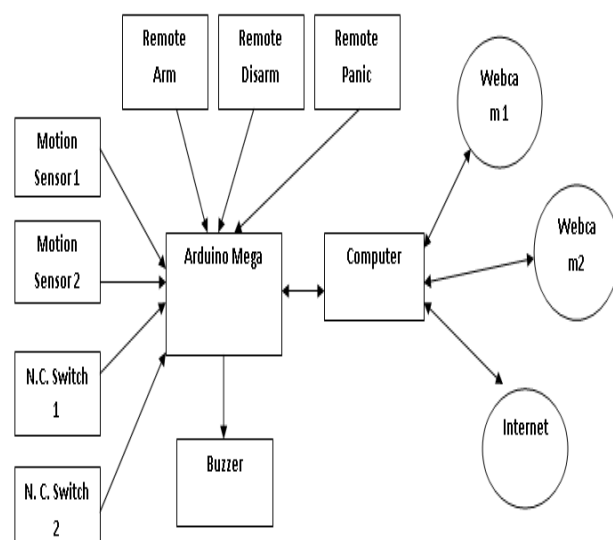- Buzzer
- Webcams

Fig.1 Home security system using

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The operation of this system is that the main unit of the project is Arduino Mega. It operates all project work; it detects the output of the sensors and executes the program of the system. The computer is used to control the cameras.

If the thief enters in the house the alarm activated with the help of normally closed magnetic switch after that the parallax PIR sensors can detects the motion of the thief and shown it by web camera of computer. The system also calls the owner of the home to take the immediate appropriate action on it. And the last stage is its records the all the motion of the thief so that it is beneficial to catch the thief and also beneficial to the police. Thus this is the simple working of the home security system and it is really useful to the security of the houses.

3. Palm Vein Technology for Research Lab Security:

Advance world demands the advance researches and its security for better future. Every country is having its own research labs for various inventions. Research lab contains deep data for every research and all its required inventories. The peoples arriving to the Research Lab bears all the necessary authority for every action. But if unintended person enters the Lab may cause very big fatal for the Lab and indirectly to the Nation.

To avoid above circumstances, different technologies have developed such as signatures and photo IDs, PIN numbers, fingerprint, voiceprint, iris scan, or facial recognition security [5]. Though the technologies are there, but still insecurity the information is a serious cause. To avoid this, a technology is developed for identification of intended and unintended researchers entering the Lab based on the Palm of human being. The technology is already being working for different areas called Palm Vein technology. Human Palm contains veins bearing deoxygenated hemoglobin is different for each person living in the world and it forms a vascular pattern as a personal identification data. This technology consists of the scanner for detecting the palm vein pattern of the human hand as shown in fig.2.

Fig. 2 Palm vein scanner technology

The person entering to the Research Lab has to first keep his hand on the scanner. The IR rays is transmitted through the palm is accepted by the vein containing deoxygenated hemoglobin in the blood illuminates, due to which a pattern is generated and it is scanned by the scanner. The pattern generated for each individual is different and unique for him. This pattern remains stored in the memory for further processing. Thus the intended researchers can only enter the Lab because of his already stored pattern.

4. Mobile control car security system:

As per the security aspect it was reported that as many as 1000 cars were stolen monthly in Malaysia, in the year 2007. The existing vehicles alarm systems are of no match to the well equipped thieves in UK there are many transportation companies employees GPS in their cars while manufacturing but this systems are become fails in many situations such as at underpasses and indoor parking. One major problem in those cars alarm is tuning and adjustable.

So to overcome this drawback and to increase the security of our cars, new technology is developed called as Mobile Control Car security System (MCCS) [6].

The MCCS mainly consist of mobile transceiver, main control unit utilize PIC controller, handle remote control device and several supplementary circuits that supports the security system. The operation of MCCS system is that all the circuitry of the MCCS system is implemented in cars. The PIC main control unit have the ability to control the mobile transceiver in the calling its owner when the intrusion is detected. As the intrusion is detected in car the control unit can call the owner of the car which number is programmed while programming so that the owner can take action on it or the owner can send the command to the main control unit that when the intrusion is executed then the engine of car will be stopped. That means alarm once trigger will immediate initiates the series of output signal to disable the car engine, switches on the flash light and siren and immediately notify user via phone [7].

As the mobile calling is take places the mobile transceiver in the MCCS system is detectable by the main switching center (MSC) of the GSM network as the mobile or call becomes activated. As the call becomes activated due to this the MSC will configure that the call or the transceiver belongs to which cell site. And due to identifying the cell site consequently the location of the car will be detected. In the situation in which the car thieves can stole the car at that time the MCCS system can call the owner and also tracked the location of the car because of transceiver of the system and due to this we can secure our cars safety [8].
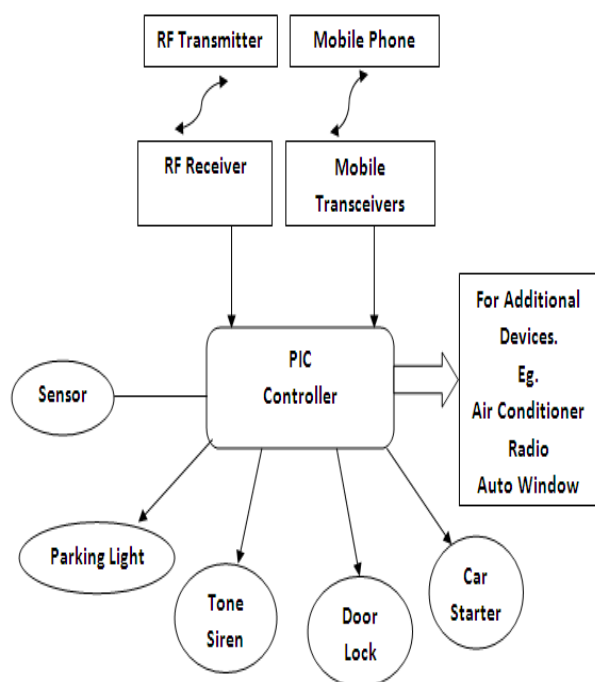
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Fig. 3 mobile control car security system

5. Bank locker security system using RFID & GSM:

The main aim of this system is to implement a Bank Locker Security System based on RFID & GSM technology which can be used to secure our bank locker. This technology basically consists of Antenna, transceiver, transponder electronically programmed with unique information. In market there are three different types of RFID is available dependent upon their frequency range. Similarly GSM is a Global Communication Model telephone standard for mobile cellular radio system operated on 900MHz frequency [9].

Here 89c51 controller is used as a heart of the system to process and control the overall working as shown in fig.4
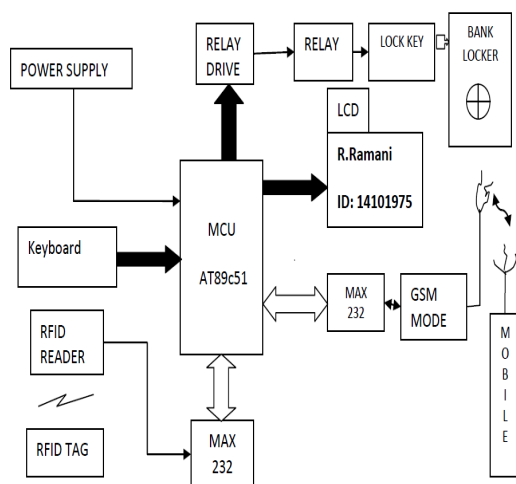

Fig. 4 GSM based Bank locker security system

In working of this system, RFID reader reads the data from the tags its means card of user , if data available in the card is valid then microcontroller display the information of account holder that name and number and request to PIN number of user and check out this PIN number is correct or incorrect then microcontroller send the text message signal to account holder mobile phone using GSM model of communication then account holder needs to send the password to microcontroller [10], after that both PIN will match with each other , if the PIN are correct then access is granted otherwise access denied. In this way we can secure our bank locker using RFID & GSM technology.

6. Border security system:

In border security system we can include both ground and team air force team to protect the intruder or any attack on border

In below figure shows the border status and overview of technology. When the intruder are introducing our border then ground sensor can sense the position of intruder and transmit the relative data information to border patrol unit then border patrol unit can read this information and control forwarded to ground border force if ground force cannot able to reach the intruder location then border patrol unit transfer the control to headquarter of border patrol unit then border patrol unit transfer the control to air force team and command to handle the situation. This system having superior coverage and a very low cost and easy to implement [11].
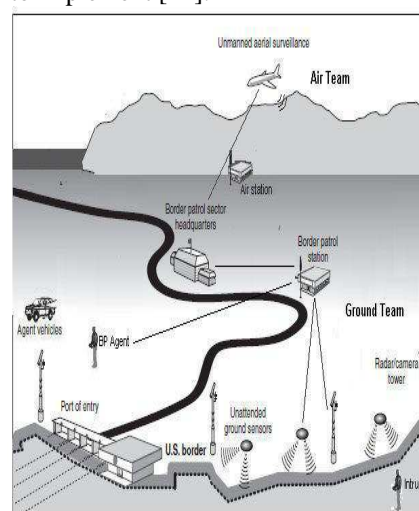

Fig. 5: Border security system

7. Conclusion:

The effect of embedded solution for max of applications brings the world at the top. In this paper one of the applications of embedded system for theft security system is overviewed in detail for various technologies. It has been observed that theft security

system starts initially from home security and then widely increases to the different sectors where a theft is a severe problem.

Acknowledgment

References:

[1]Dr. N.SuthanthiraVanitha1 Department of Electrical and Electronics Engineering, Knowledge institute of technology, Tamilnadu, India "Vehicle Tracking and Locking System Based on GSM and GPS" *I.J. Intelligent Systems and Applications,* 2013, 09, 86-93 Published Online August 2013 in MECS (http://www.mecs-press.org/) DOI: 10.5815/ijisa.2013.09.10

[2] R.Ramani Assistant Professor / ECE V.M.K.V Engineering College, Salem, S.Selvaraju Professor / ECE V.M.K.V Engineering College," Bank Locker Security System based on RFID and GSM Technology" International Journal of Computer Applications (0975 – 8887) Volume 57– No.18, November

[3]Shawn Johnson Computer Science, College of Natural Sciences Colorado State University Fort Collins, United States Eric Fry Computer Science, College of Natural Sciences Colorado State University Fort Collins, United States efry@rams.colostate.edu."Embedded Home Security System"

[4]. Malik Sikandar Hayat Khiyal, Aihab Khan, and Erum Shehzadi. " SMS Based Wireless Home Appliance Control System (HACS) for Automating Appliances and Security", *Issues in Informing Science and Information Technology*. Vol. 9. pp. 887 – 894. 2009.

[5] A.Mallikarjuna , S.Madhuri Department of Computer Science Department of Information Technology
S.V University, Tirupati, India JNTU, Hyderabad, India " Palm Vein Technology Security" Volume 3, Issue 7, July 2013 ISSN: 2277 128X International Journal of Advanced Research in Computer Science and Software Engineering.

"
[6]. Kumar Chaturvedula .U.P, "RFID Based Embedded System for Vehicle Tracking and Prevention of Road Accidents", International Journal of Engineering Research & Technology (IJERT) , Vol. 1 Issue 6, August – 2012, ISSN: 2278-0181

[7] Albert Alexe, R.Ezhilarasie, "Cloud Computing Based Vehicle Tracking Information Systems", ISSN: 2229 - 4333 (Print) | ISSN: 0976 - 8491 (Online) IJCST Vol. 2, Iss ue 1, March 2011

[8] Kunal Maurya , Mandeep Singh, Neelu Jain, "Real Time Vehicle Tracking System using GSM and GPS Technology- An Anti-theft Tracking System," International Journal of Electronics and Computer Science Engineering. ISSN 2277-1956/V1N3-1103-1107

[9]. Islam, N.S. Wasi-ur-Rahman, M. "An intelligent SMS-based remote Water Metering System". 12th International Conference on Computers and Information Technology, 2009, 21-23 Dec. 2009, Dhaka, Bangladesh.

[10]. Leyden J.J., McGinley K.J., Hölzle E., Labows J.N., Kligman A.M. The Microbiology of the Human Axilla and Its Relationship to Axillary Odor. J. Invest. Dermatol. 1981;77:413–41

[11] Daniel Flesher, Oluseyi Oni, Aaron Sassoon May 12, 2011 "Border Security: Air Team.

Author Profile:

Mr.Sopan D. Borale Received the diploma in electronics and telecomm. from MSBTE Mumbai in 2013. Currently persuing him bachelor degree in Elecronics & Telecommunication. Engg from PLITMS College of Engineering Buldana, SGBAU Amravati , Maharashtrastate,India(email:sopanborale @gmail.com). Interested in the field of instrumentation system

Miss.Priyanka B. Susar., Received the diploma in electronics and telecomm. from MSBTE Mumbai in 2013.Currently persuing her bachelor degree in Elecronics & Telecommunication. Engg from PLITMS College of Engineering Buldana, SGBAU Amravati Maharashtra state, India (email:priyanka.susar111@gmail.com). Interested in the field of EMBEDED system

Miss.Pragati M. Dabhade.
Received the diploma in electronics and telecomm. from MSBTE Mumbai in 2013. Currently persuing her bachelor degree in Elecronics & Telecommunication. Engg from PLITMS College of Engineering Buldana, SGBAU Amravati , Maharashtra state,India(email: pragatidabhade@gmail.com). Interested in the EMBEDDED system

Mr. Mahesh S. Kholgade Received the diploma in electronics and telecomm. from MSBTE Mumbai in 2013. Currently persuing him bachelor degree in Elecronics & Telecommunication. Engg from PLITMS College of Engineering Buldana, SGBAU Amravati , Maharashtrastate,India(email:sopanborale @gmail.com). Interested in the field of instrumentation system

Prof. A. V. Harkut, M. TECH (VLSI Design)
Assistance Professor Department of E&TC Engg. , PLITMS Buldana