GOLD CHAIN THEFT PREVENTION USING GSM

MAHITHA K[1] AARTHI K[2] MEENA K[3]

Department of Electronics and Communication Engineering

Bharathiyar Institute of Engineering for Women,Deviyakurichi.

mahikrish306ece@gmail.com[1] arthikasi4@gmail.com[2]

meenaece200161@gmail.com[3]

Dr. SATHISHKUMARI A[4]AP/ECE

Department of Electronics and Communication Engineering

Bharathiyar Institute of Engineering for women,

 Deviyakurichi. Sat090579@gmail.com[4]

ABSTRACT

Chain snatching is a serious threat scaring the public and a challenging issue for the police department to trace the offenders and recover the gold. To resolve this issue, the city police installed CCTV cameras and organized awareness programmes in crowdy places. These initiatives reduced the crime to certain extent. However, things remain the same and chain snatching has considerably increased. As offenders usually target the women in the society, it is very difficult to recover emotionally the affected women by such incidents. In this paper, it is proposed to design a small electronic gadget to track continuously when the chain is snatched. This gadget uses power from the human body, wearable sensors to track the location, and wireless transmission technology with smart phones over long distances. This innovative design will reduce the anti-social activities in public places. It can also be used as a life saver during accidents in remote areas. This project is used to prevent gold chain theft using GSM. The system consists of Microcontroller PIC (16F877A), LCD display, GPS Module and GSM Module.

KEYWORDS: Gadgets, LCD display, GSM Module, GPS Module, Microcontroller PIC 16F877A

1. INTRODUCTION

There are many sensational news about chain snatching in day today life. The Snatchers target women by making sudden attacks at the crowdy places like shopping malls, residential areas, markets etc. After the chain has been snatched, it is not an easy way to identify the snatcher (burglar). Often it is read in the newspapers about the chain snatching incidents and it creates a negative impact in the society. This describes the incident related to chain snatching. To resolve the problem of chain snatching, the police department monitors the activities of robbers on a daily basis and makes the city under surveillance intensively. Moreover, undetected chain snatching instances are resolved with the help of CCTV footages available on public places, malls, super market business areas etc. Despite the efforts made by the cops, the instances of chain snatching had not come down. With these issues, this project fixes its goal to have an innovative design for developing a smart electronic gadget with a combined technology of tracking the offender by transmitting signals through wireless transmission to the police department. The proposed work involves the design and development of an electronic gadget that records the criminal offence of chain snatching automatically and the recorded scenario gets transmitted to the nearby police station to alert them and have an immediate action. This project uses PIC16F877a Microcontroller to check the chain brake robbery. Normally there is a wire sensor inside the chain. When there is a wire failure the wire failure sensor senses the wire condition inside chain, then the signal from the sensor is amplified to some voltage level it given to the ADC. The ADC convert the

172

incoming analog voltage signal to Digital signal then it send to Microcontroller. If the wire broke, the Microcontroller activates GSM through RS232 communication. The GSM module sends the SMS to police as well as owner with GPS location at every 10mins. Here the Microcontroller displays the corresponding status in the LCD display. Then the GPS module will collect the co-ordinate of that place and send SMS to the cell phone number of the owner of the chain.

2. LITRATURE SURVEY

Z. Shouran, A. Ashari, and T. K. Priyambodo, "Internet of Things (IoT) of Smart Home: Privacy and Security," *International Journal of Computer Applications,* **vol. 975, p. 8887.**

SHs represent a concept rather than actual structures. Science fiction has provided the concept of home automation for decades, and has been demonstrated by the American Association of House Builders in 1984, thereby defining SHs. An SH is the integration of technology that enables users to achieve a better quality of living. SH is a voice assistant for the remote control of all home appliances. SH can help to improve security, comfort, convenience, and energy management. SH aids elderly and disabled people by providing them a safe and secure environment. Basically, SHs can be categorized into two types, namely, wired and wireless systems. Wired systems use optical fibers, bus lines, and power lines. Wireless systems are a combination of a sender and a receiver. At present, many new applications use wireless technology, such as radio waves or infrared, to communicate with other devices. SHs can simultaneously work on wireless and wired systems. SH automation systems have gradually become all-purpose portable controllers that provide convenience to people in their daily routines. An SH is an environment where heterogeneous and electronic devices are connected together to deliver smart services to individuals. IoT-based SHs are an important part of the proposed and developed smart cities worldwide. An SH is designed to improve the standard of living, safety, security, and reduce energy consumption and resources. In addition, SH plays an important role in community development. Thus, the key features of SHs include real-time monitoring, safety from hackers, remote control, and fire and gas alarms. As sensitive and personal data are managed between SHs, security and privacy solutions must be developed to protect users and corporate data from infringement while ensuring reliable services.

3. EXISTING SYSTEM
3.1 TECHNOLOGIES

3.1.1 X10

X10 is a versatile home automation technology that uses your home's existing electrical wiring to remotely control lights, appliances, security systems, pools and much more. X10 remote control, switch, and module commands travel from X10 transmitters to X10 receivers through standard household wiring. No new wiring required. With additional wireless devices, the opportunities are endless with X10 home automation systems.

ADVANTAGES

1. Inexpensive and no new wiring is required.

2. Simple to install

3.100's of compatible products

4. Control up to 256 lights and appliances

5. Time proven: it has been around for over 30 years.

Disadvantages:

1. When there is an appliance running that generates noise onto the power line.

2. Appliances that may cause problems are motors and advanced electronics.

3. X10 transmitter is on one phase of your home's electrical wiring and the receiver is on the other side. Many times the signal either bridges the two phases at the transformer at the street or via some 220V appliance in the home.

ZIGBEE

It is based on wireless 802 standard from the IEEE. The ZIGBEE Alliance is made up of vendors who made products to work with it. It uses one of the key elements in IEEE 802.15.4 which makes a mesh network so that most of the devices communicate equally. It also consumes very low power and uses a mesh network structure to offer excellent range and speedy communication between devices. However, some users have noted that ZIGBEE devices frequently have difficulty communicating with those made by different manufacturers, so it might not be the best option if you're looking for seamless interoperability.

Advantages:

1. ZIGBEE has always had a focus on ultra-low power consumption which made it ideal for battery operated devices or locations where wiring would be difficult. This multi-hop mesh networking approach can use redundant pathways to make sure the message gets through even if one of the devices is out of order.
2. ZIGBEE devices can be strung together in networks of up to 65,000 nodes. It enables quality-control engineers to scatter ZIGBEE units throughout a factory to monitor vibrations that might indicate an imminent equipment failure. It allows building managers to control campus wide electrical and security systems from a single computer.

Disadvantages:

1. ZIGBEE is integrated only at the radio level.

2. Device makers develop propriety software only.

3. Less quantity and availability of other competing devices in comparison with other systems.

4. Interoperability among brands is short of guaranteed.

4. PROPOSED SYSTEM

The IOT is an environment in which objects, devices, vehicles, buildings and other items which are deeply merged with electronics, software, sensors and network connectivity, which enables these objects to collect and exchange the data from one thing to another thing. This network allows the objects to be sensed and controlled automatically across the existing infrastructure. This network creates the opportunities to integrate the things into computer based network system for improving the efficiency, accuracy, and economic benefits. When it is augmented with sensors and actuator then this technology becomes cyber-physical systems. Smart grids, smart homes and intelligent transportations are examples of the internet of things.

The concept of internet of things was developed in 2013, because of the convergence of multiple technologies, whose range from wireless communication to the internet and embedded system to electromechanical system. It means that wireless sensor network, control system and automation are involved to enable the IOT. In the internet of things cloud computing is so much important because it acts as a front end to access the internet of things .Cloud computing is now more popular service that comes with more advantages and characteristics. There are three broadly categorized components of an IoT automated

house: hardware, software, and communication protocol. [6] discussed about a system, GSM based AMR has low infrastructure cost and it reduces man power. The system is fully automatic, hence the probability of error is reduced. The data is highly secured and it not only solve the problem of traditional meter reading system but also provides additional features such as power disconnection, reconnection and the concept of power management.
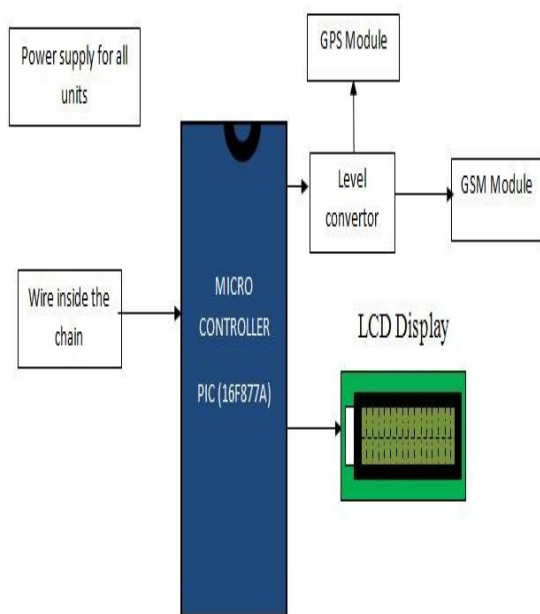

Fig 4.1 Block diagram

This project uses PIC16F877a Microcontroller to check the chain brake robbery. Normally there is a wire sensor inside the chain. When there is a wire failure the wire failure sensor senses the wire condition inside chain, then the signal from the sensor is amplified to some voltage level it given to the ADC. The ADC convert the incoming analog voltage signal to Digital signal then it send to Microcontroller. If the wire broke, the Microcontroller activates GSM through RS232 communication. The

GSM module sends the SMS to police as well as owner with GPS location at every 10mins. Here the Microcontroller displays the corresponding status in the LCD display. Then the GPS module will collect the co-ordinate of that place and send SMS to the cell phone number of the owner of the chain.

MICROCONTROLLER PIC 16F877A

The PIC architecture is characterized by its multiple attributes: Separate code and data spaces (Harvard architecture).A small number of fixed-length instructions. Most instructions are single-cycle (2 clock cycles, or 4 clock cycles in 8-bit models), with one delay cycle on branches and skips.One accumulator (W0), the use of which (as source operand) is implied (i.e. is not encoded in the opcode)All RAM locations function as registers as both source and/or destination of math and other functions.[7]A hardware stack for storing return addresses. A small amount of addressable data space (32, 128, or 256 bytes, depending on the family), extended through banking Data-space mapped CPU, port, and peripheral registers. ALU status flags are mapped into the data space. [2] proposed a novel method for secure transportation of railway systems has been proposed in this project. In existing methods, most of the methods are manual resulting in a lot of human errors. This project proposes a system which can be controlled automatically without any outside help. This project has a model concerning two train sections and a gate section. [4] discussed that the activity related status data will be communicated consistently and shared among drivers through VANETs keeping in mind the end goal to enhance driving security and solace. Along these lines, Vehicular specially appointed systems (VANETs) require safeguarding and secure information correspondences. The program counter is also mapped into the data space and writable (this is used to implement   indirect

jumps).
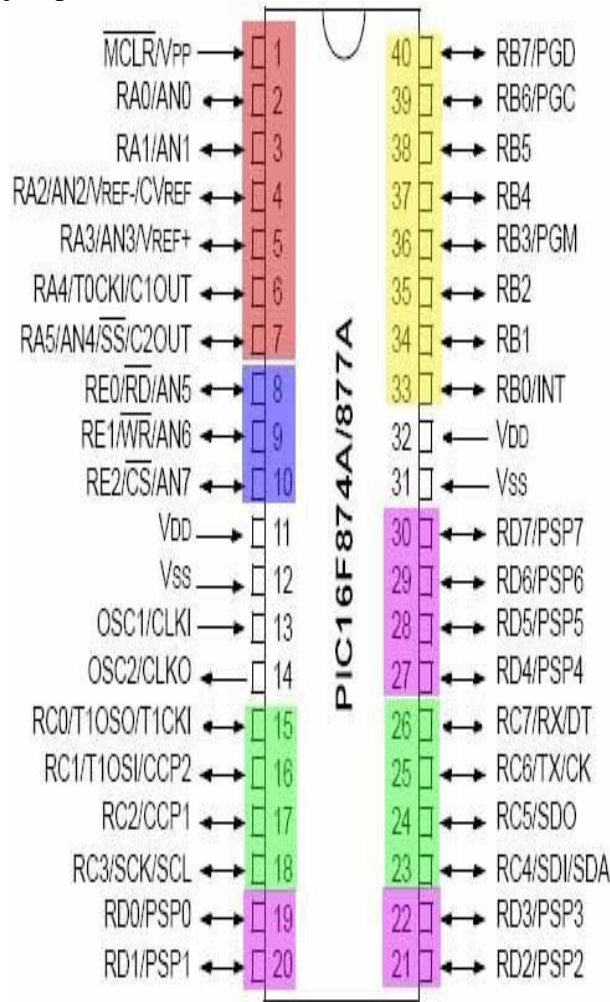
PIC microcontroller pin diagram

There is no distinction between memory space and register space because the RAM serves the job of both memory and registers, and the RAM is usually just referred to as the register file or simply as the registers.

5.CONCLUSION

A framework that uses electronic gadget with less power utilization containing sensors is designed to capture the in-stance of chain snatching. The captured information along with geographical information gathered from the GPS enable smart phones is transmitted using wireless technology to the nearest police station through SMS and a call. This innova-tive design will reduce the anti-social issues like chain snatching to certain extent.In future, alarm buzzers can be connected to this gadget to alert the entire surrounding im-mediately.

REFERENCES:

[1] Detecting Direction of Movement Using Pyroelectric Infrared Sensors by Jaeseok Yun, Member, IEEE, and Min-Hwan Song.

[2] Christo Ananth, K.Nagarajan, Vinod Kumar.V., "A Smart Approach For Secure Control Of Railway Transportation Systems", International Journal of Pure and Applied Mathematics, Volume 117, Issue 15, 2017, (1215-1221).

[3] Human infrared signal recognition using single PIR detector Linhong Wang Chongqing College of Electrical Engineering Chongqing, China.

[4] Christo Ananth, Dr.S. Selvakani, K. Vasumathi, "An Efficient Privacy Preservation in Vehicular Communications Using EC-Based Chameleon Hashing", Journal of Advanced Research in Dynamical and Control Systems, 15-Special Issue, December 2017,pp: 787-792.

[5] European Telecomm. Standards Inst (ETSI),"GSM 2.09: Security Aspects", June 1993.

[6] Christo Ananth, G.Poncelina, M.Poolammal, S.Priyanka, M.Rakshana, Praghash.K., "GSM Based AMR", International Journal of Advanced Research in Biology, Ecology, Science and Technology (IJARBEST), Volume 1,Issue 4,July 2015, pp:26-28

[7] B.Chen, R.Curtmola, G.Ateniese, and R.Burns, "Remote Data Checking for Network based Distributed storae System," in the Proceeding of ACM CCSW 2010.