

Smart Security System for Businesses using Internet of Things (IoT)

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Abstract—There is a sudden exponential use of security systems in our day to day life. For example, security in a business space, organisation, or bank locker is important to every individual now. Lately, security cameras are being utilized in order to build safe and secure places in organisations. However, this technology needs a person regularly to detect any problem in the frame taken from the camera. The main aim of this paper is to enhance the traditional security system. The security system based on the IoT platform has the potential of interacting real-time with the device. The system consists of a camera, voice sensor/microphone, motion/activity sensor and an LTE/Wi-Fi module which is interfaced with the heart of the system, processor. This entire economic system using IoT in real-time will allow mobile devices and computers to remotely track the activities occurring at the location where the IoT device is placed and records all the activities, which will be saved on one's cloud storage account. The IoT based security system helps in added protection of the user/customer property. Security systems are designed to perform certain tasks when a secured zone is breached. In this paper, notification is sent to the concerned person as an alert where the user can take necessary actions. The main advantage of this system is the ability to remotely manage one's property 24/7. With this IoT based smart locker, one can monitor, get alerts, notify in case of emergency from anywhere in the world using mobile application via cloud connectivity 24/7. To be specific, we aim to design a light-weight, low cost, extensible, flexible wireless smart security system using IoT which employs the integration of various latest technologies. The combination of the various technologies can be used synergistically as a smart security to control a system in a house/organisation (lock or unlock a system with the help of SMS/app) from remote locations. The complete system is designed considering all types of door locks and lockers by providing a simple, effective ease of installation, to provide homes/organisations extreme security and our system will be a means for preventing, detecting and counter-measuring robbery or burglary.

Index Terms—Smart security systems; Smart business; Automation; Internet of Things; IoT; Radio Frequency Identification; RFID; Global Positioning System; GPS; Global System for Mobile communication; GSM; Short Message Service; SMS; cloud networking; fuzzy algorithm.

I. INTRODUCTION

Security system has become a top concern for everyone who owns or rents a home or office. Moreover, safe and secure residential or working space is the necessity of every individual. According to the reports published by the National Crime Records Bureau (NCRB), In 2015, 622116 cases were reported which includes theft, burglary, robbery and dacoity with a value of 4263.5 Crores. Similarly, In 2016, 641851

cases were reported with a value of 7753.0 Crores (increase of 45% in the assets value). With more number of business sectors and banks, comes the risk of theft.

Around the globe, people are facing more problems about security in banking systems and other financial systems. Current lockers in bank and couriers are protected by security systems which are completely monitored by only banking authorities, with respect to banks, each locker owner does not have any clue of events happening with his/her valuable assets or lockers. In case of theft or burglary of valuables in safe deposit boxes, banks seldom take the responsibility of lost items and do not pay any compensation.

The common feature of all bank locker hiring agreements states, "As per safe deposit memorandum of hiring locker, the bank will not be responsible for any loss or damage of the contents kept in the safe deposit vault as a result of any act of war or civil disorder or theft or burglary and the contents will be kept by the hirer at his or her sole risk and responsibility. While the bank will exercise all such normal precautions, it does not accept any liability or responsibility for any loss or damage whatsoever sustained to items deposited with it. Accordingly, hirers are advised in their own interest to insure any item of value deposited in a safe deposit locker in the bank," they have said. There is a very big gap to address here.

Who are the potential Users?

- Houses
- Businesses/Organisations - industries/offices/warehouses/hotels/temples
- Banking Systems
- Financial Systems
- Courier/postal systems
- Collection Delivery Points (CDPs),
- Personalised SAFE
- Cash Drawer (Treasury box)
- Organisation TILL
- Personal Wallet
- Personal Protected Closet (PPC)
- Door locks
- Flight Baggage Trackers
- Inventory Management System

For example, if the home is left unattended for most of the day-time and home invasion crimes are at its peak as constantly monitoring of the home is difficult. Another reason