

Chapter 7

An Integrated Digital Authentication Mechanism for Intrusion Detection System

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ABSTRACT

The internet of things is the internetworking of physical devices, vehicles, buildings, and other items embedded with electronics, software, sensors, and network connectivity that enable these objects to collect and exchange data. Security has become an important issue everywhere. In current days, security is becoming necessary as the possibilities of attacks and threats are increasing day by day. In this situation, specific sensitive premises should monitor by a secure alert system with IoT-based advanced technology in order to prevent the threats and attacks on persons or system assets by intruders. The purpose of this system is to notify the use of the intruder's presence at premises and send alert messages to the authority people who help to take prevention actions as well as detection if in misfire situations. This notification will be helpful to know about intruder's presence even if right persons are away from the location.

INTRODUCTION

Security is an important concern in our daily life. It wanted by everyone as much as possible. People premises are protected and provide peace of mind when they are away from it. Different security agencies were working against the threat agencies like masquerades, misfeasors and clandestine in the society. Whereas intruders

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have tried to attack the information as well as user's assets frequently. A high - end updated security systems were proposing and designing by the security agencies to protect the assets and privacy of the end users. It extends that an alert message send by advanced security systems to the users which can able to reduce the crime rate. People rely on intelligence based machines to get security from the organised crimes and criminals in this modern world.

There are different types of security systems available for the protection of the home/organisation. Some of the systems use buzzers and alarms for alerting the user about the theft at the home/organization. And some of the systems use the arrangement of password checking systems at the home for preventing the unauthorized persons entering into the home. Internet of things (IoT) with advanced techniques is used by all sensitive zones. Especially it has been showing more impact on healthcare system by its quick and efficient results [Elhayatmy 2018& Bhatt, 2017].

This chapter holds a sample real time application process of IDS that holds an access control for specified area forming an important secure connection. The Digital authentication based security system that can adopt at Home/ organizations or any specified areas by the authorities. It has maintained by various types of sensors like PIR and others like a microcontroller and a web camera. The Passive infrared sensor (PIR), Vibration sensor, web camera and the microcontroller were at the transmitter end which are will continuously monitor the premises. If any security problem has found then immediately receiver end microcontroller would switch on the web camera and then sent an alert event to an owner entity through image and voice. This equipment can work with low power and it can able to function in real time scenarios.

In global market, simple alert message security systems to fully monitored security systems by using advanced techniques were available. These can provide full security to the coverage premises as well as keep away from the threats on human assets. The problems come when the users need to spent a lot of money for setup, equipment, monthly monitoring fees, and even warranties. This secure premises system does not need to be monitored by premises that offer such services because the alert will be send directly to higher officials. In a normal commercial alarm system creates a loud blast sound which is noticeable to the intruder or create disturbance to the neighborhood. This will create a panic situation and no one knows that the intruders could be armed with guns or any type of light weapons, this could be dangerous to people around. To avoid this situation, this secure system will not create any sound. A text message and the image (face recognition) of the intruder will be sent to the users if the system triggered. This kind of digital authentication improves the efficiency of the system to detect the intruders. In this system each

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