# Literature Survey

# Automatic Garage Door Open System

Automatic door opening system is used throughout the world. They are used in many places such as shopping malls, public buildings, airports, hospitals, theatres, etc. These systems are used to open the door when a person comes near to the entrance of the door and close after entered into the door. The automatic door opening system consists of sensing process, main controller circuit and motor. The system block diagram of the automatic door opening system with entry counter for university library room. In this system, the entry door and exit door are made to automatically open.

The entry unit is outdoor equipped for the entry door while the exit unit is indoor equipped for the exit door. The PIR sensor senses the infrared energy produced by the human body from a considerable distance. This sensing signal is fed to a microcontroller to operate the door motor through motor driver. The entry unit is equipped at the entry door of library. If there is no further movement within the PIR operating range, the LCD shows welcome message. When a body approaches within the operating range of the sensor, it sends a logical command to open the door, the LCD show “Door Opened” and count the entry person. The counting result is shown on 7-segment display. And then the door automatically closes with a fixed time delay and the LCD show “Door Closed”.

In the exit unit, the door is opened or closed by sensing PIR sensor. Real time format is shown on LCD according to RTC module. The quotes for library are also shown on LCD

The Arduino based automatic door opening system with entry counter for university library was designed and simulated. To program the microcontroller, Arduino IDE was used. Proteus Professional software was used to simulate the design. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the system. In this way, the overall system has been successfully implemented.[1]

The project mainly aims in designing a completely automated security access system for domestic and industrial applications. Security is the bigger concern for an individual or a firm. Recognizing the need of security, we developed an automated security access system with user friendly access. This project makes use of DTMF technology to enter the password which makes very secure opening or closing of door. When the user enters the wrong password then the system automatically sends alerting SMS messages to the predefined authority number. This onboard computer consists of number of input and output ports. The onboard computer is commonly termed as micro controller. The input and output port of the micro controller are interfaced with different input and output modules depending on the requirements. In other words micro controller acts as a communication medium for all the modules involved in the project.

The controlling device of the whole system is a PIC Microcontroller. DTMF decoder reader, Stepper motor, GSM modem, LCD display is interfaced to the Microcontroller. Whenever a call is made to the phone in the system, it will be answered automatically and password is entered through phone keypad. The DTMF decoder gets the password and feds as input to Microcontroller. The Microcontroller validates the password. If the password is valid it opens the door which is linked to the stepper motor interfaced to the Controller. The status of the door is displayed on the LCD display. When there is any wrong entry of the password the system alerts automatically in the form of SMS messages to the respective authorities. The Microcontroller used in the project is programmed using Embedded ‘C’ language. An embedded system is a combination of software and hardware to perform a dedicated task.Some of the main devices used in embedded products are Microprocessors and Microcontrollers.

Microprocessors are commonly referred to as general purpose processors as they simply accept the inputs, process it and give the output. In contrast, a microcontroller not only accepts the data as inputs but also manipulates it, interfaces the data with various devices, controls the data and thus finally gives the result.

The project “**Automatic Door Opening and Closing**” using PIC16F72 microcontroller is an exclusive project which is used to control door using mobile phone.[2]

Electric gates are an easy way to ensure the security of private premises (Rouse, 2016). The advancement of technology has increased the safety and security of people physically and emotionally. One of the reasons for the emergence of smart home is the in-creasing risk of burglary

and busy lifestyle (Win et al., 2016). The busy lifestyle has influence the needs to remotely control and monitor their home. Internet of Things (Lee and Lee, 2015) solves this problem as ubiquitous devices such as smart phone, Internet TV, sensors and etc. are connected to the Internet combine together to form a communication between human and machine.

These days, the issues like keys that have been left behind and missing keys frequently happens in our daily lives (Jeong, 2016). In addition, the remote key can be also be duplicated. It is essential to strengthen the smart home system through administrative aspects. The smart home project by (Jeong, 2016; Mowad et al., 2014; Win et al., 2016) proposed an authentication method to the system to strengthen the security in home site. However, the alert is only notified to the buzzer

or to the site only. For this project, we want to add the access control method on the server side to the smart home project. Chowdhury et al., (2013) and Sahani et al., (2015) proposed face recognition in home security system. Contrary to our study, the authentication is based on access control system.[3]

Automatic door opening systems using IR sensors plays a very important role in domestic applications. The elimination of manual supervision adds up as an additional advantage for its usage. Its significance can be proved by considering the following specialties of kit designed.

An IR sensor measures the infrared levels radiating from objects in its field of view. The sensor used in this app note has a range of about six meters. IR sensors are able to sense motion, and are often used to detect whether a human has moved into or out of the sensor’s range. They are small, inexpensive, low-power, easy to use, and resilient. They are commonly found in appliances and gadgets used in homes and businesses. They are often referred to as PIR, "Passive Infrared", "Pyroelectric", or "IR motion" sensors. All objects with a temperature above absolute zero emit HEAT in form of radiation that is invisible to human beings because it is in the infrared region. The hotter the object is the more infrared radiation is emitted. The passive term in passive infra-red sensor refers to the fact that PIR sensors don’t generate or radiate any energy for detection purposes. They work by detecting energy given off by other objects.

When a human passes in front of an IR sensor, it converts their body heat into an output voltage change and this triggers the detection. When an object is detected, the output pin of PIR sensor has a voltage level of 3.3v [4]

An Automatic Door Opener System is a simple project based on PIR Sensor and Arduino, which automatically opens and closes the door by detecting a person or object.You might have seen Automatic Door Opener Systems at shopping malls, cinemas, hospitals etc. where, as soon as a person approaches the door (at about 2 or 3 feet), the door automatically slides open. And after some time (about 5 to 10 seconds), the door closes by sliding in the reverse direction.

In the Automatic Door Opening System, the main component or hardware is the sensor which detects the persons (well, the motion of the person in our case). For this purpose, we will be using the PIR Motion Detector Sensor.We have already seen in the Arduino PIR Sensor Tutorial about how a PIR Sensor Works and how to interface a PIR Sensor to an Arduino.[5]

**REFERENCES**

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