CHAPTER I

INTRODUCTION

1.1 Project Background

Home security and comfort is a major concern for homeowners. To increase the security and comfort of the home, not a few people install a home security system to prevent break-ins and unwanted events that can interfere with the security and comfort of homeowners. The presence of smart home technology is very helpful to improve home security and comfort. Smart home technology is closely related to artificial intelligence which is used to increase the safety, comfort, and energy saving factors in a home.

Smart home technology is part of the Internet of Things. The Internet of Things (IoT) was first introduced by Ashton in 1999. IoT can be defined as a set of things that are connected to each other via the internet.Internet of Things (IoT) is a development of network communication of interrelated objects, connected to each other via internet communication and can exchange data which then turns it into information.Thing can be tags, sensors, people etc. IoT functions to collect data and information from the physical environment (environment), the data is then processed to understand its meaning.Part of the Internet of Things (IoT), smart home systems and devices often operate together, sharing consumer usage data among themselves and automating actions based on homeowner preferences. Smart home devices are connected to each other and accessible via a single central point—smartphone, tablet, laptop or game console. Door locks, televisions, thermostats, home monitors, cameras, lights, and even appliances such as refrigerators can be controlled through a single home automation system. The system is installed on a mobile device or other networked device, and users can schedule a time for certain changes to take effect.

Security system is security that has a cycle that has been processed in the sense that it has been systematized according to its application in the community or in the environment according to its field. There are many basic things that create a sense of security, one of which is because of threats, this is what drives many people to need a sense of security in their daily lives, it is undeniable that many ways have been done to minimize crime,but still, crimes also occur one after another. In

addition to threats that also affect the community to meet the needs of a security system, namely protection, protection has a different meaning from threats which

connote both also have different meanings if security is based on threats, which means that an unwanted crime will occur. place, but if the definition of protection is based on an event that is ready for security itself.

The door access control system is a digital security system that ensures authorized access to homeowners. The system ensures that only users can access the door of the house, thus preventing unauthorized parties from accessing the door of the house. The door access control system is a development of the traditional door lock system. This system is classified as very efficient in avoiding violations, vandalism, and other criminal activities. At the same time, the door access control system makes it easy for homeowners to access the doors of their homes. Homeowners no longer have to carry keys or unlock doors the traditional way.

1.2 Problems Statements

1. Existing fingerprints, passwords and padlocks used to access house doors have a low security system that increases the problem of duplicate keys, password resets, lost key sensor insensitivity and cards.
2. Homeowners cannot detect access by unknown persons due to key duplication, password hacking and fingerprints intentionally hacked by unauthorized users.
3. The system used for access to open doors such as fingerprints, passwords, face sensors, etc. cannot record the details of anyone who accesses the door of the house.

1.3 Objectives

1. To Developing an Access Control System (ACS) using a Smart Home system in the form of a smart door that has been incorporated by the Arduino microcontroller and uses Bluetooth as the connection.
2. To provide security to the User in automatically locking the door.
3. To Provide notification to homeowners when the door is open and locked.

1.4 Scope of Project

1.4.1 User Scope

A. House Owner
   1. Log in to the application
   2. Register house member
   3. Delete house member
   4. Check history access door
   5. Lock door
   6. Unlock door
   7. Receive notification on the lock and unlock activities.

B. House Member
   1. Login into application
   2. Lock Door
   3. Unlock Door

1.4.2 System Scope

- The system will issue a notification on android when the door is accessed.

- Record All the lock and unlock door activities

1.7 Project Assumptions and Limitations

1.7.1 Project Assumptions
1. Improved home security system based on Arduino microcontroller as a door-connected device.
2. Using android as an automatic control system on the door of the house to make it easier for users to open and lock.
3. With application smart home security system based on Arduino it can
4. meet the security needs of individuals and families at home.

1.7.2 Project Limits
1. This system can only be used around the house.
2. The security system only uses the solenoid as the primary key.
3. This application system can only be used on Android.