

BLUETOOTH DOOR LOCK AUTOMATION SYSTEM

NOR DIYANA BINTI HUSSIN

A thesis submitted in fulfillment of the
requirements for the award of the degree of
Bachelor of Computer Science

Faculty of Computer Systems & Software Engineering
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ABSTRACT

Smartphones nowadays become a necessity in human life. This era also dubbed as the world's at the fingertips. Therefore, everything can be done by the smartphone. Bluetooth application contained in the smart phone mooted the idea of this project, namely Bluetooth automation door lock system. Previously, to open and close the door houses are done manually where users need to use the key to unlock or lock the door so the probability to lose the key is high and will risk the security of the house. With the development of Bluetooth door lock automation system, the user can unlock and lock their door house with Bluetooth and it is very convenient as people nowadays will always bring the smartphone. This door lock automation system comes with extra secure access. The system can only be accessed and configured by authorized users as it needs to be on the same password with the Bluetooth module in order to access the applications. As long as the user has the smartphone, everybody can afford to have this system as the price is very affordable compare to other door lock in the market.

ABSTRAK

Pada masa kini, telefon pintar menjadi satu keperluan dalam kehidupan manusia. Era ini juga digelar sebagai dunia di hujung jari. Oleh itu, semuanya boleh dilakukan dengan menggunakan telefon pintar. Aplikasi Bluetooth yang terdapat di dalam telefon pintar mencetuskan idea projek ini, iaitu sistem kunci pintu menggunakan Bluetooth secara automatik. Sebelum ini, untuk membuka dan menutup pintu rumah perlu dilakukan secara manual di mana pengguna perlu menggunakan kunci untuk membuka atau mengunci pintu. Oleh itu, kebarangkalian untuk kehilangan kunci adalah tinggi dan akan merisikokan keselamatan rumah. Dengan penciptaan sistem kunci pintu menggunakan Bluetooth secara automatik, pengguna boleh membuka kunci dan mengunci pintu rumah mereka dengan Bluetooth pada telefon pintar dan ia adalah sangat mudah kerana orang ramai pada masa kini akan sentiasa membawa telefon pintar. Sistem kunci pintu secara automatik ini dilengkapi dengan akses tambahan yang selamat. Sistem ini hanya boleh diakses dan dikonfigurasi oleh pengguna yang dibenarkan sahaja kerana ia memerlukan kata laluan yang sama dengan modul Bluetooth untuk mengakses aplikasi ini. Selagi pengguna mempunyai telefon pintar, semua orang mampu untuk mempunyai sistem ini dengan harga yang sangat berpatutan berbanding dengan kunci pintu lain yang terdapat di pasaran.

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Nowadays, technology has become a cohesive part of people's lives. It has, and continues to affect many parts of daily life and has permitted better social communication, luxury of transportation, the capability to treat in entertainment and media and has helped in the progress of medicine. The formation of many devices such as mobile phones and computers have initiated many people to depends on technology to be in touch with their friends, keep information such as pictures, movies, documents, and music. (Ruwaida & Minkinen, 2014)

An investigation has been done by ABI Research, at the end of 2013, 1.4 billion smart phones has been in use which are 798 million of them use Android, 294 million use Apple's iOS, and 45 million use Windows Phone. It is potential to send data via wireless connections as smart phone normally provision one or more short range wireless technologies such as Bluetooth and infrared (Kamelia, S.R, Sanjaya, & Mulyana, 2014) . From the time of its introduction, the amount of people that use mobile phones to communicate with other people has increased dramatically to become one of the major means of communication.

Smart homes technology is one of the smart phone applications that have been industrialized. Smart home innovation is the advances that are utilized as a part of homes with numerous apparatus contrary over a local network. As indicated by the Smart Homes Association the best meaning of smart home technology is the amalgamation of innovation and administrations through home systems administration for a superior benefit of living (Rosslin John Robles, 2010). This innovation can be utilized to observe, alert and execute, as indicated by the preferred functions. Smart homes innovation makes programmed connection with environment Internet, phone or consistent altered telephones. Smart homes really have the capability to make life easier and more reasonable

The purpose for Bluetooth innovation in a smart phone today is not only for the transmission of information and records as it were. Lately, smart home automation is one of the uses of Bluetooth innovation. Bluetooth innovation work over unlicensed, its accessible at 2.4GHz frequency, it additionally can associate digital devices within a range of 10m to 100m at the speed of up to 3Mbps yet it relying upon the Bluetooth device class. With these capabilities of Bluetooth, we approach a door automation system in light of Bluetooth innovation, particularly in door automation system (Kamelia, S.R, Sanjaya, & Mulyana, 2014).

1.2 PROBLEM STATEMENT

Nowadays, there are a lot of people using smartphones and becoming a necessity in human life. Unfortunately only few known about the use of applications that is available in the smart phone. One of the applications available in the phone is Bluetooth. Bluetooth applications are often used to send and receive files, photos or songs. However, Bluetooth application can also be used for door lock automation system.

Door lock automation system is widely used to control the security of the house. There are a lots of lock door automation system especially using RFID or keypad. However, there are few problem that have detect and identified in this system.

False alarms, easy to hacks and costly design were the weakness of most security system .More security systems applies this approach to prevent false alarm trouble without involving high costs (Malek, 2010).

There are a lot of use Bluetooth communication known to be secure and not require line of sight (LOS) making it invulnerable to hacking tactics. This Bluetooth configuration can be made by certain user that predefined by the system. Unrecognized communication or foreign access will not accepted by the system hence deny any possibilities being hacked. With battery operated and small size, made the system discrete enough from being knocked physically.

Most people hesitate to install security system since it requires expensive equipment and sometimes it have subscription fee. Security system build based on Arduino circuit will reduce the starting costs (Thorin Klosowski, 2012). Additionally, Bluetooth module price become low price over the time and Bluetooth enabled mobile phone become ordinary in market make the system more affordable. Therefore most residents are able to own the security systems in their premises and install it as fast as possible.