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# Design and Implementation of Smart Door Lock Control System using Bluetooth Controller of Smart Phone

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**Abstract -** *Smart Home is the term commonly used to design a residence that uses a home controller to integrate the residence's different automation system. The most used home controller. The most popular home controllers are those that are connected to a Windows based PC. In this project, Door locks automation system using Bluetooth-based Android Smartphone is proposed. In this project we proposed a door lock system using Bluetooth in a mobile device, it is the small part of smart home technology, so it will more simple and complement to use. It also depends on Android platform which is free open source software. In this project, Door locks automation system based on Bluetooth-of Android Smartphone is proposed the system consist of Bluetooth controller and some hardware, design of a Bluetooth-based Smartphone application is for lock and unlock the door. The hardware design for door-lock system is consist of android smart phone as the task master, Bluetooth module as command agent, microcontroller as controller center/data processing center, and solenoid as door lock output.*

***Key Words*: Android, Door Automation, Bluetooth , Smart phone ,Microcontroller**

## 1.INTRODUCTION

As per the statistical search of burglary cases happened in India rate of crime is increasing day by day. In 2013 there is 10 percent increment in burglary cases. In 2012 there is the 8.2 percent crime is due to the home theft so there is a need to develop some smart door lock system to save our home from such crime.9 out of 10 burglars avoid home with alarm system. They would not attack the home try drop the attempt. These facts encourage us to develop our smart system which help us to provide security to residential and commercial application. There are various ways proposed and implemented for providing security to home and commersial appliances using sensors deployment,various transmitters,internet and these methods are commersially adopted so popularly.Few of them are NFC based system implemented by Chi-Huang Hung[1],GSM based system proposed by Adnan Ibrahim[2].These systems are works efficinetly bt cosumes a lot efforts for working and implementing.The GSM module is costlier than While implementing RFID is complex and doesnot provide comfort while dealing with. So we are proposing the system based on bluetooth Available with every cellphone. For this we are using bluetooth unique ID produced during manufacturing.This system is reliable and very efficient on the basis of cost and safety.

## 2. HARDWARE ARCHITECTURE

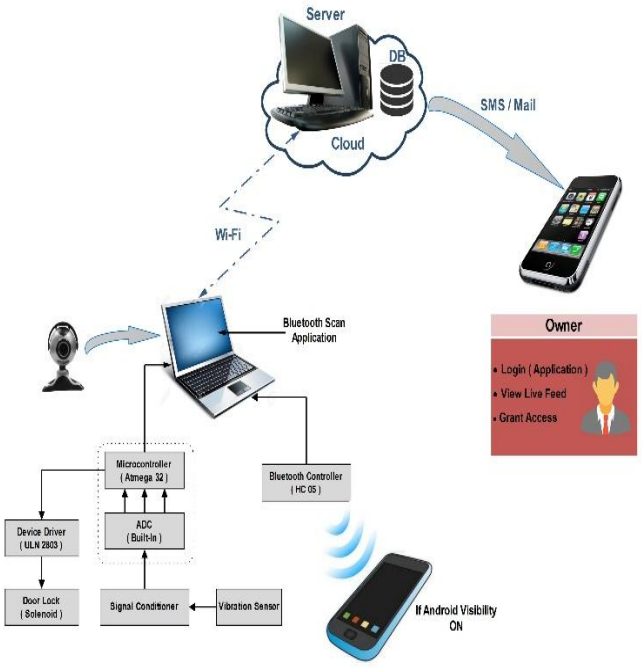



FIg.1:- Hardware Architecture

The hardware used is as follows:

### 2.1 BLUETOOTH HC 05:

This IC is used for controlling and manipulating Bluetooth connectivity with various smart phones. It's having following features:

It auto-connect to the last device on power as default. It permits pairing device to connect as default. The device also provides. Auto-pairing PINCODE:"0000" as default. Auto-reconnect in 30 min when disconnected as a result of beyond the range of connection.

### 2.2 MICROCONTROLLER ATMEGA 32

Microcontroller does the task of signal processing and controlling hardware's through device drivers. Its having following features: It is High-performance, Low-power AVR® 8-bit Microcontroller. It comes with 131 Powerful Instructions and provides Fully Static Operation and works on up to 16 MIPS Throughput at 16 MHz .It's have High Endurance Non-volatile Memory segments,32K Bytes of In-System Self-programmable Flash program memory, 2K Bytes SRAM,1024K Byte Internal EEPROM ,Write/Erase Cycles: 10,000 Flash/100,000 EEPROM

### 3. SOFTWARE DESIGN IMPLEMENTATION

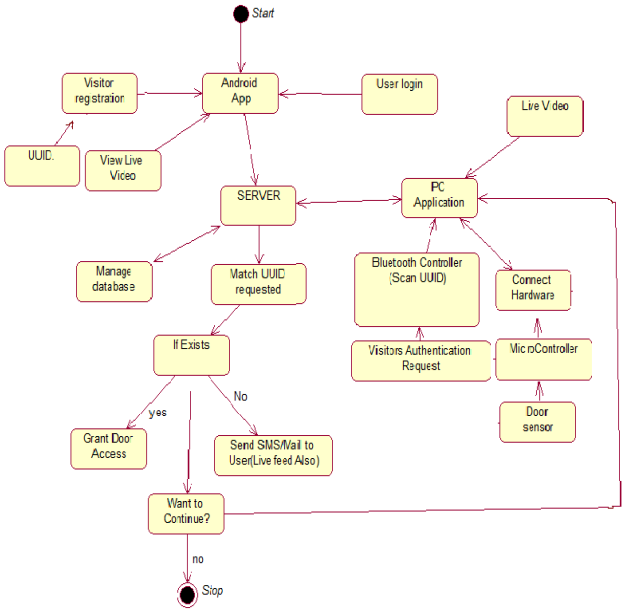



**Fig.2: Software design Implementation**

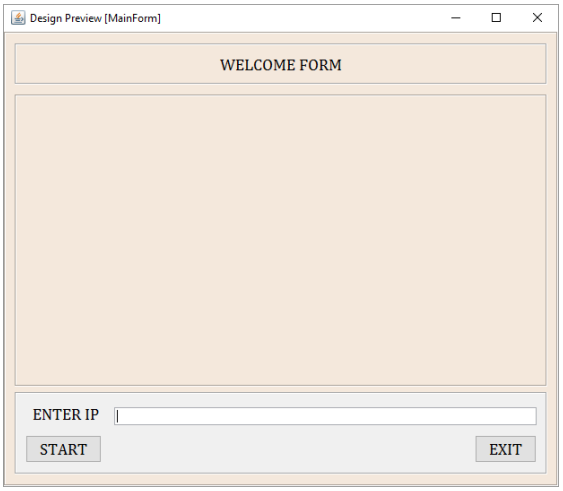
Flow of software implementation is according to the above drawn diagram. The software implementation part mainly consists of three modules

1. PC application
2. Server and Database management system
3. Android application

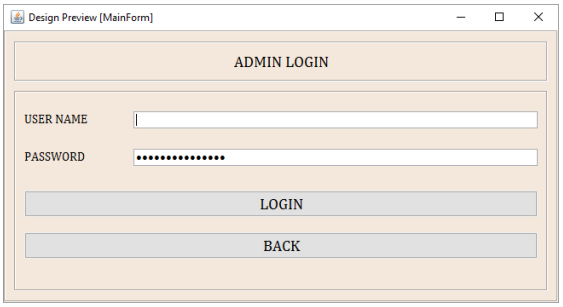
The PC application does the work of scanning Bluetooth controller ID, connections with hardware, live video streaming, Database connectivity and access provision options for door lock control.

The server consists of various Bluetooth ID registered and owners' connectivity. It matches UUID and accordingly provides instruction to microcontroller. It also manages Database for visited ID's for further processing. The android application mainly consists of user interface for authentication of owner, live video streaming options.

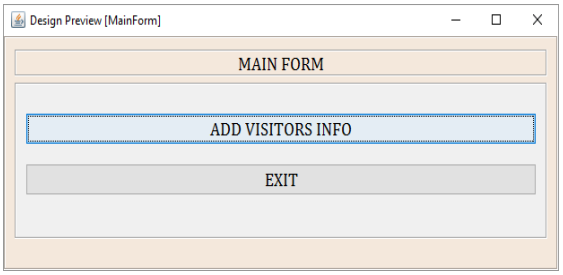
Views of android application is shown below:

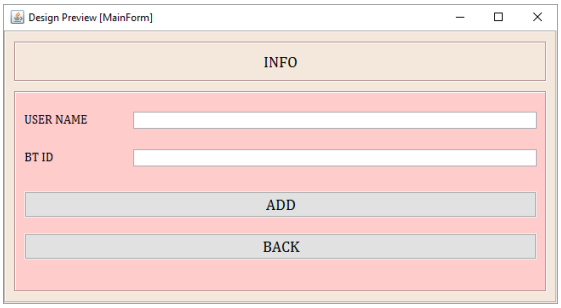



Admin Registration:




Adding Visitors and family members:






## 4. CONCLUSIONS

The proposed system is capable of providing higher security and efficiency to the door lock control system. The system is lower in cost and efficient while using with its advance comfort of use. The proposed system is using owner's manual identification of users. It can be make smart using face detection technique. It will be smarter than this one.

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