A THREE STAGE SECURED DIGI CASE

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Abstract- The capital is breath of every businessman. A businessmen is always concern about security of own capital, which may be a money or data that should be private and confidential with high level of security. Now a day, it becomes an important issue of stealing exorbitant luggage of person by thief. This product present design solution, for implementation of economical but secure way out. This product aims to lock and unlock the Digi-case with the help of android phone. System has inbuilt microprocessor which can communicate with android phone wirelessly. Here Bluetooth or Wi-Fi can be use for wireless medium communication. As stated before, with help of android OS, it is possible to create several levels of security. This product provides three distinct level securities, where two of them are software base and one on hardware security.

I.INTRODUCTION

"Behind every invention there is need."

The need of such system is not only to add new features in era of security system but it aim to give a person sigh of relief that one's luggage is secure and reach the destination. In most of the case of stealing the exorbitant luggage is done during the transporting as the environment is very from place to place during the transportation. Here the design is made in such way that the Digi case is secure in all situation and cannot be unlocked or lock without the authorized person. Foundation of such system is based on Electro-mechanical locking system, which is further interfaced with controlling unit, which consists of Microprocessor or microcontroller based on need of user. The security is provided with both by Electro-mechanical locking system as well as processing circuitry. Here front end for user is Android Phone which is easiest way for any user for having control over the Digi-case. The proposed block diagram for the system is as shown below in fig (1).

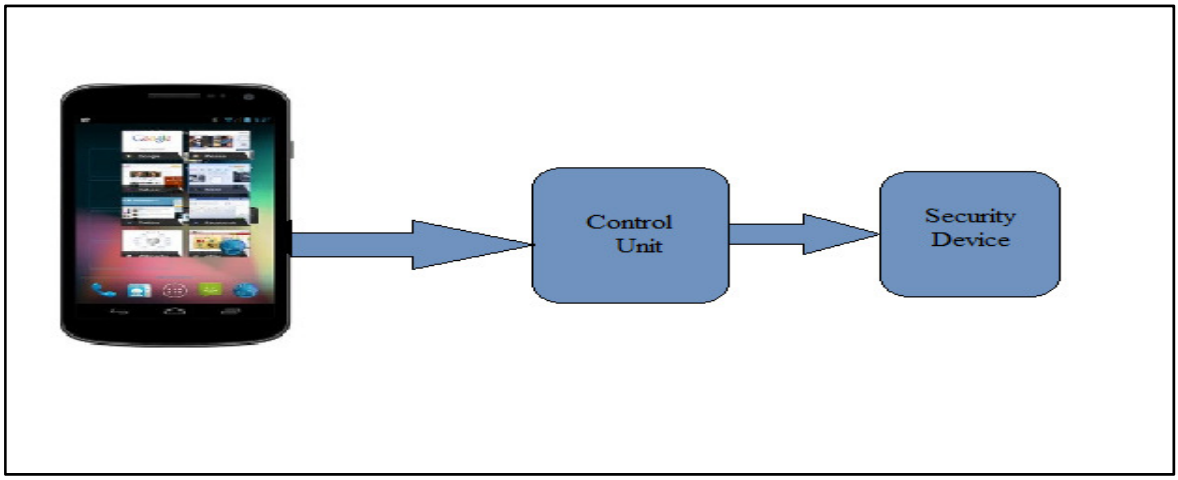


Figure (1) Basic Block Diagram

II. CONTROLLING UNIT

A controlling unit is intermediate communicator between operating device and remote controlling device. This may contain a processor or dedicated ASIC. Here intermediate controlling unit contains wireless module so that it can interact with user device and take decisions as per the signal or command received from the user side. The relevant action to be taken is defined by a program designer. An idea about the user interface is given in figure (2). Here the user interface is made as easy as possible for convenient use. User need to just press buttons. Such system is not only preferred for easing a use but also for high level security services, in accordance to reducethe possibility of external interferences.

III. SYSTEM SECURITY

As this system is composition of hardware and software, it is possible to create several layer of protection. For example, software level security which is probably user identification. An Android OS is smart enough to make user identification in several ways such as face detection, Voice Recognition, Conventional Password, Pattern Lock, Puzzle lock and lot more. Apart from this it is possible to create intermediate level security, which is highly secured than other options. This will be combination of software and hardware detail. Here using a programming skill it is possible to create such security algorithm which access data from both hardware and software. From the software side it could be a data retrieve from the user password and from the hardware side it could be physical address for the device, for example IMEI number of phone, Bluetooth/ Wi-Fi/MAC address of the system. If the data from the both side are fed to Smart data multiplexer than it will create highly secure encoded data. Such data is known as cypheric key, which is always unique for each new combination of data. As the device changes the data changed and according auto generated cyphered key become mismatch. A basic level security system which give moderate level security with easiest user interface can be shown as below in figure (2).

IV. USER INTERFACE

User interface is very important part of the system as it is only way to communicate / control the system. A user can keep watch over own Digi Case from anywhere in the world regardless the position of Digi Case or itself. Here user interface is kept as easy as possible; hence user does not have to worry about the Digi-case. Here user can add multiple Digi-cases in single application.

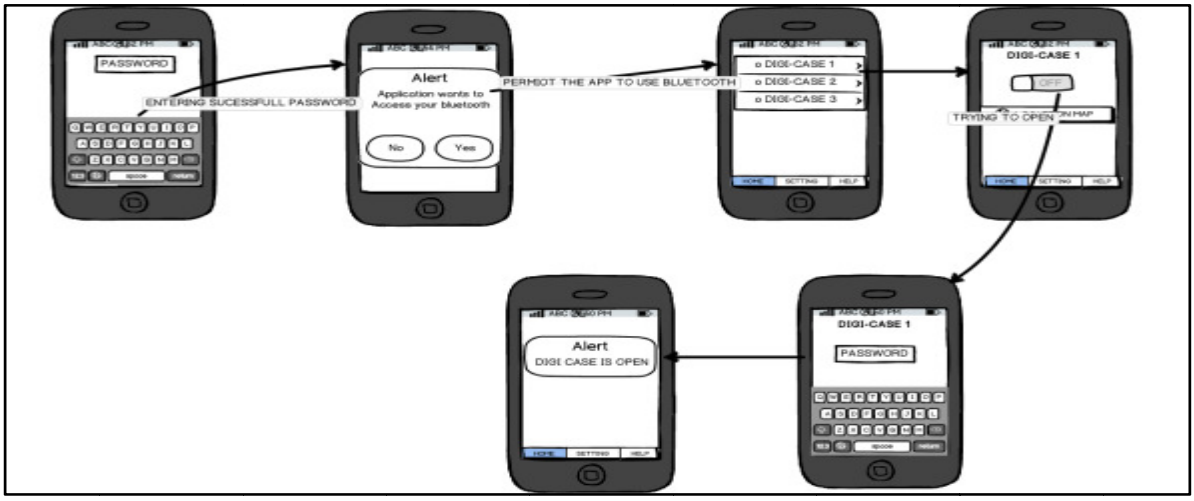
V. APPLICATION ALGORITHM

Application shown in figure (2) can be built with strong secured algorithm. A sample algorithm is shown in figure (3). Here application starts with System configuration, which checks whether the system has recognized device or not.

- CASE 1(If no device is recognized)

In this case, application will prepare for first time execution. Next step is to configure mobile device and make it registered for the hardware. For that at initially it will shows terms and condition for the use of application after acceptance by the user it will proceed further. Now first job of application is to make sure of secure access of the application, hence it is

Figure(2) User Interface Mockup



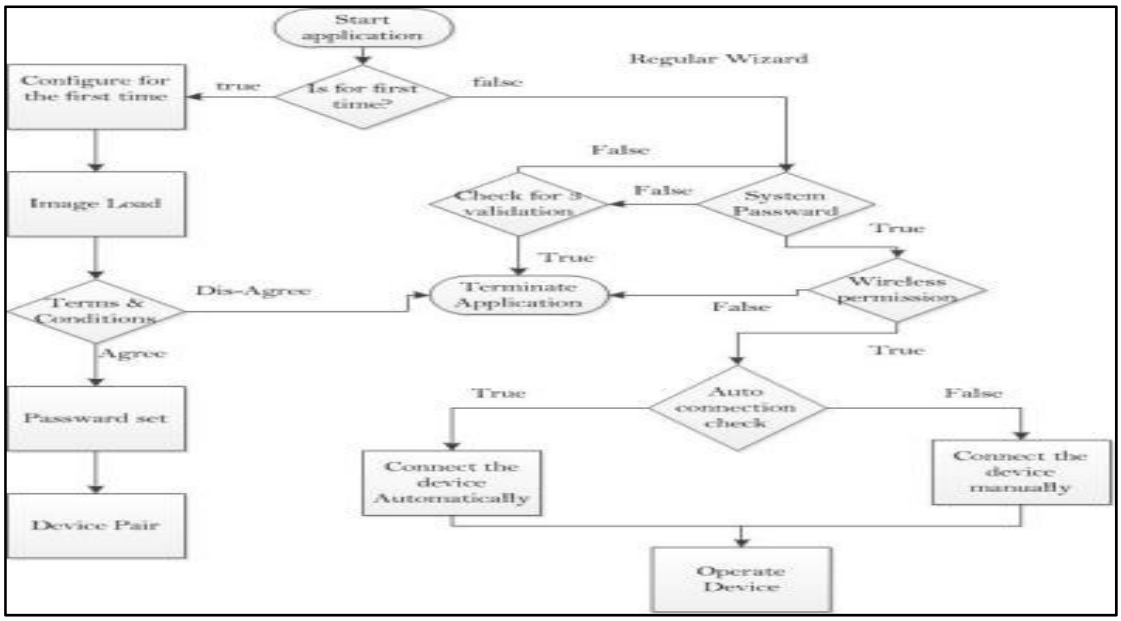


Figure (3) Application Algorithm

necessary to get password protection from the user and for the user. After getting the pass word, application asks for the Bluetooth access permission from the user. If user denies the permission applications get terminated instantly. After getting the Bluetooth permission application starts searching for Bluetooth enable device. Here user has to manually locate the device to pair with. Device pairing is also protected with password; hence without programmer guidance user is not able to access the application and system as well. This procedure is to be executed only for the first time, then after the application gets started with regular wizard.

- CASE 2 (If device is recognized)

If the user's phone is already paired with the module, than application start with this regular wizard. At the opening of the application user is asked for the password, which has been enter by he/she at the time of first system configuration. If the password entered by the user is wrong application will terminate instantly. If the user is unable to enter the correct password for more than three times than application get in 'LOCK DOWN' mode. At this stage user must have to come up to the programmer company to get out of it. After entering a correct password user get access of application, now user is asked for the Bluetooth access permission. As Bluetooth turned on application starts searching for the system Bluetooth to be connected if user has allowed the application for auto connect, otherwise user have to establish the connection manually. Now with the pairing with system now user can control all the modules connected with the system.

VI. CONCLUSION AND FUTURE SCOPE

Feasibility of the system is also considering point for practical implementation. The hand held device is smartphone based on android OS, so it is easily available to all. The Electro-mechanical lock not a big job to set in Digi-case. With more accommodation of electronic sensors and equipment we can add features like.

- Auto detection of Digi Case state (ON/OFF).
- Auto detection of presence of human and take action regarding that.
- With the help of image processing control the Digi Case and give alerts in case of unknown human being.
- According to Digi Case location update, give smart suggestion for alert through image processing.
- As a present stage hardware (Control unit) is separate module, which can be integrated inside the switching system of Digi case for better look

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