



**A. Locker**

It is solid material made by iron which is used to store various things( confidential data, personal document, jewelry, etc.) locker containing separate three compartment for storing purpose.

**B. Microcontroller**

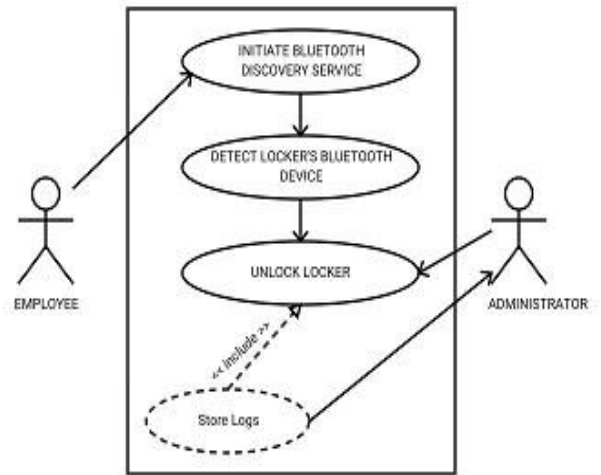
A microcontroller is a small computer on a single integrated circuit. In modern terminology, it is similar to, but less sophisticated than, a system on a chip (SoC); an SoC may include a microcontroller as one of its components. A microcontroller contains one or more CPUs (processor cores) along with memory and programmable input/output peripherals. Program memory in the form of ferroelectric RAM, NOR flash or OTP ROM is also often included on chip, as well as a small amount of RAM. Microcontrollers are designed for embedded applications, in contrast to the microprocessors used in personal computers or other general purpose applications consisting of various discrete chips. Microcontrollers are used in automatically controlled products and devices, such as automobile engine control systems, implantable medical devices, remote controls, office machines, appliances, power tools, toys and other embedded systems.

**C. BLE**

Bluetooth Low Energy (Bluetooth LE, colloquially BLE, formerly marketed as Bluetooth Smart) is a wireless personal area network technology designed and marketed by the Bluetooth Special Interest Group (Bluetooth SIG) aimed at novel applications in the healthcare, fitness, beacons security, and home entertainment industries. Compared to Classic Bluetooth, Bluetooth Low Energy is intended to provide considerably reduced power consumption and cost while maintaining a similar communication range. Mobile operating systems including iOS, Android, Windows Phone and BlackBerry, as well as macOS, Linux, Windows 8 and Windows 10, natively support Bluetooth Low Energy. The Bluetooth SIG predicts that by 2018 more than 90 percent of Bluetooth-enabled smartphones will support Bluetooth Low Energy.

**D. Android Smartphone**

A smartphone is a physical device is a class of mobile phone and mobile computing device. They are distinguished from feature phones by their stronger hardware capabilities and extensive mobile operating systems. Android is a mobile operating system developed by Google, based on a modified version of the Linux kernel and other open source software and designed primarily for touchscreen mobile devices such as smartphones and tablets.



**III. DATA FLOW DIAGRAM**

- A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modelling its process aspects. A DFD is often used as a preliminary step to create an overview of the system without going into great detail, which can later be elaborated. DFDs can also be used for the visualization of data processing (structured design)
- Employee is actual end user which can access locker by using BLE Locker system.
- Employee will initiate Bluetooth Discovery Service.
- After discovery phase Employee will detect locker Bluetooth device with the help of his/her android smart phone.
- Now employee will try to unlock locker with his/her device.
- When employee gives command to open the locker. These commands store in the form of Logs on the cloud system, now the cloud will send these logs to the administrator for checking validation of employee.
- After checking the authentication of the employee administrator will give command to unlock or do not unlock for that employee.

**IV. CONCLUSION**

After studying we conclude that smart employee lockers has following benefits:

- Save time money (maintenance staff, battery replacements, etc.)
- User-friendly use of lockers (card, mobile phone as key)
- Clean-line locker banks (Fully concealed locks)
- Easy Complete locker management (with various reports)

A complete smart lock open-source system is implemented on a ESP32 Microcontroller board. This means that system administrators can access the web server running on the board itself, and the users can enter codes that are validated by onboard software too. Authors provide a step-by-step guide to install and test the system. Besides, developers around the world can extend and modify the available source code with minimum complexity. Although this is the first available version of the proposed system, its architecture enables modular development, management, automation, and eases updating and maintenance by means of stable, professional, and widely accepted software tools.

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