

SMART BAG

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Abstract-Smart Bag is a very innovative idea with many interesting features. It consist of solar cell which will be used for charging various devices, RFID reader interfaced with microcontroller chip to maintain schedule as well as useful for bag verification, panic button, bluetooth module and for tracking purpose. Communication process is served by using android application which will be inside our android smart phone. Our phone is interfaced with Smart Bag. These features lets you build powerful and reliable product.

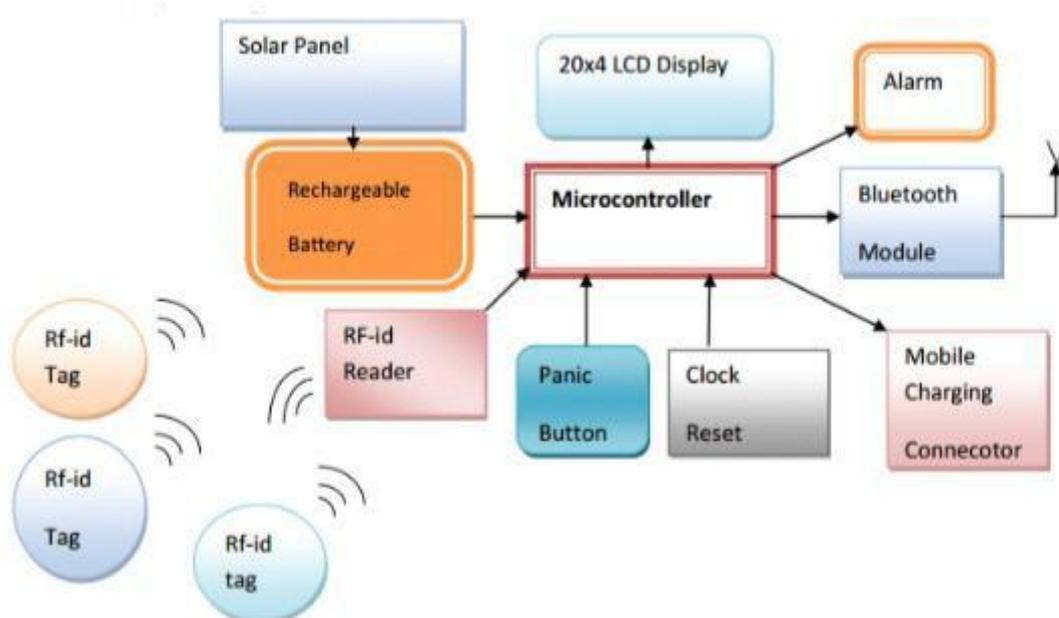
Index Terms- Solar panel, RFID reader, Microcontroller, Bluetooth module

1. Introduction

This rapid generation requires a smart bag which will be able to fulfill their smart needs. Smart bag is designed as per these requirements. In this project, front part of bag is covered with solar cell, which will continuously produce power through day light while we travel. Inside structure consist of rechargeable battery for an usage like charging mobile phone or tab, laptop. Bag will even have a RF-ID reader with microcontroller chip to check the book which we are dropping matches with that schedule or not and it will also give beep indication to user for missing book.

One main feature of this bag will be a panic button, if it gets pressed by user during panic condition like getting kidnapped or any emergency, it will send panic trigger to mobile while Bluetooth module and GPS of mobile will be activated automatically to get location of user and send automatic SMS to home and police control room for immediate help. Bluetooth inside the bag will be even used to track the mobile if it is in range of bag or not. If Bluetooth linkage between mobile and bag breaks then alert beep and vibration is generated in bag as well as user will get alert about missing device on mobile.

2. Block Diagram



3. Project Architecture

A. Passive RFID Tags and Reader

Passive RFID tags are chosen for this project. Each of the system users will have their own RFID tag, which will interact with the RFID reader through the antenna. Each tag will have its powerful microcomputer which provides a highly-flexible and cost-

effective solution to many embedded control applications. The RFID reader will be communicating with the microcontroller through RS232 interface. The RFID reader provides the power for RFID tags and receives the feedback from the RFID tags through the antenna. The reader will then pass the information to the microprocessor for further processing. Although the RFID reader is capable of programming the information inside RFID tags, such a feature will not be used in this project.

B. Microcontroller 89s51

The AT89s51 is a low-power, high performance CMOS 8-bit microcomputer with 4Kbytes of Flash programmable and erasable read only memory (PEROM). The device is manufactured using Atmel's high density nonvolatile memory technology and is compatible with the industry-standard MCS -51 instruction set and pinout. The onchip Flash allows the program memory to be reprogrammed in-system or by a conventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel AT89s51 is a powerful microcomputer which provides a highly flexible and cost-effective solution to many embedded control applications.

C. Bluetooth Module

It is a device that acts as mediator between any embedded system and the Bluetooth communication medium. It has built-in protocol for serial communication i.e. serial port profile. Thus it provides an ideal solution for developers who want to integrate Bluetooth wireless technology into their design with limited knowledge of Bluetooth and RF technologies. This unit requires +3.3 VDC for its proper operation.

4. Working

Front part of the bag is covered with solar panel. Solar panel will charge the Rechargeable Battery(12V lead acid battery).The power generated with the help of solar panel will be continuously getting stored in rechargeable battery. This power will be useful in charging of various devices like mobile, laptops etc. Micro-controller having 4KB Flash memory that will help us in reprogramming. Microcontroller will be useful in maintaining schedule. It also controls buzzer and panic button section. The day selected will be displayed on LCD.RFID reader is used which operates on 125MHz. RFID passive tag will be used in books which will be having 12 digit unique code. If a particular day is selected then on LCD the books list will be displayed that need to be carried on that day. Once a particular book is dropped that will be marked OK on LCD and if a wrong book is dropped then buzzer will beep.

For serial communication HC05 bluetooth module is used. GPS will be used to trace location of mobile. Micro-controller will send signal to mobile indicating its existence.

Once panic button is pressed signal will be send to controller. If the panic condition is detected then a message will be sent to parents or any registered including location of bag that will be traced using GPS.

4. Conclusion

The progress in science & technology is a non-stop process. New things and new technology are being invented. As the technology grows day by day, we can imagine about the future in which thing we may occupy every place. The proposed system based on microcontroller is found to be more compact, user friendly and less complex, which can readily be used in order to perform several tedious and repetitive tasks. Though it is designed keeping in mind about the need for school kids, it can extended for other purposes such as commercial & research applications. Due to the probability of high technology (Android) used this system is well software controlled. The feature makes this system is the base for future systems. In future we can use this idea of smart bag to packing system in factories, shops, super markets etc.

5.References

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