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Smart Bag Using Solar and RFID Technology

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Abstract--- *The Interaction with Smart Bag is a novel idea that uses RFID Technology for packing our items smartly. Radio Frequency Identification (RFID) uses a reader to get information from a tag attached to the item. By adopting this technique, a Smart Bag is formulated. Entities which are utilized in building a smart bag are RFID receiver, Keypad, microcontroller, LCD, Voice IC, GPS, GSM. List of items and its count can be given by using keypad. Items are hooked up with RFID tags. Communication circuits comprises of microcontroller and RFID receiver in which message passing, reading of item is done. When the items are placed inside the bag, the RFID receiver reads the RFID Tag and sends the items in the bag to the microcontroller. The microcontroller compares it with the entered list. If any item is missing then the microcontroller produces a voice alert of missing item. The Smart Bag consists of a Digital Lock. The bag can be only unlocked by entering the secret code to the microcontroller. When an unauthorized person tried to open the bag the microcontroller sends the temporary message to the owner using GSM modem. This message consists of the GPS location of the bag.*

Keywords--- *RFID, Microcontroller, Solar panel, LCD.*

I. INTRODUCTION

The environment in today's world is very stressful. Thus, there is a need of a Smart Bag is immense in today's stressful environment. Which is exactly what our project aims at? We propose our very innovative RF-Id Smart Bag.

The front part of the bag will be covered with a solar cell, which will continuously produce power through day light while we travel anywhere. This solar cell provides energy to the rechargeable battery which is placed inside the bag. These Battery can be used for charging mobile phone, tabs or laptops[3].

The bag also has a RF-Id reader with microcontroller chip to check if the number of books matches with the schedule for the day. Using the RF-Id we can also identify if any book is missing or if there is an extra book inside the bag. There will be a beep indication to the user for a missing book or extra book, which is not required for the day[1].

One of the features of the bag will be a panic button. The user can press the button in a panic situation like after getting kidnapped, rape attempt, emergency. It will trigger a message 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[5].

Bluetooth inside bag will be even used to track the mobile if it is in range of bag or not and if Bluetooth linkage between mobile and bag breaks then alert beep and vibration is generated in mobile and bag as well to alert user of missing device. In this project, a smart bag has been developed to increase the security and convenience of the normal bag often used by ladies. This bag secures one's valuables against bag theft[4].

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.

Lastly, the valuable tracking system ensures that your valuables are always close by and sounds an alert if otherwise. If the valuable is too far away, a tracking buzzer can be activated to help locate the valuable by moving in the direction where the buzzer beeps the fastest. This system is implemented using radio frequency and can track items up to 10m away.

II. EXISTING SYSTEM

Today, mostly every user is using Or carrying the bag in order to keep something in it.But my question is it is safe? for example it may be theft or stolen. In case if user forget to take the books then user not have to do anything to anything because it's natural humans can forget, user is left with no other option but calling home. Now if the required books is so important for that day then in case the person have to go to home with no option left becomes more difficult. In this

case the user may face many issues a she might not get the required file. Now to overcome this problem, We are making this project in order to remind the owner of the bag about the daily schedule through LCD display and if it's not matched then it's give the notification and beep.

In this project, front part of bag is covered with solar cell. Which will continuously produce power through day light while we travel and it inside rechargeable battery for latter a usage like charging mobile phone or tab, laptop. Bag will even have an RF-Id reader with microcontroller chip to check if it matches with that days schedule or not and give beep indication to user from missing book or extra book, which is not required for the day. One main feature of this bag will be a panic button, if it gets pressed by user during panic condition like getting 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 kidnapped or rape attempt or material 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 bag will be even used to track the mobile if it is in range of bag or not and if Bluetooth linkage between mobile and bag breaks then alert beep and vibration is generated in mobile and bag as well to alert user of missing device.

III. PROPOSED APPROACH

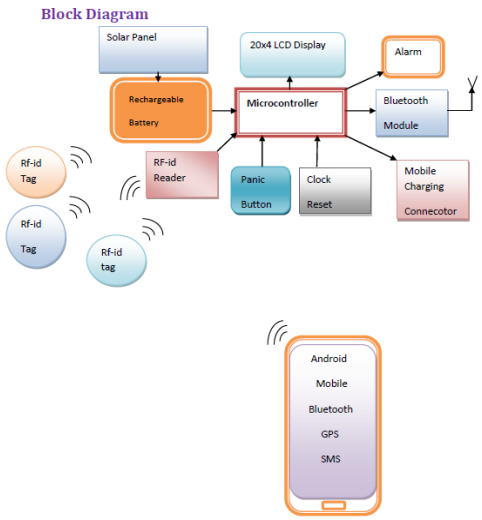

Fig1: Block Diagram Of Smart Bag

The solution proposed is to provide the best of Bag by providing some magnificent features. There are many normal bags available which are just used for normal operations and is limited to only storage purpose and doesn't perform any other operation. This is the biggest drawback where users has the best of Bag but he/she just use it for storage or carry purpose[7]. To overcome this limitation of traditional bag, our project uses Solar Cell to charge the gadgets with rechargeable battery as a medium without need to worry about the battery life of gadgets such as laptop,Mobile,Tablet, etc. In this case, the main feature "Panic Button" concept is used in order to prevent the risk of getting kidnapped and Rape. If in case it happens the by this feature user location is automatically send to the emergency contacts. The requirement of this project is that user must have the rechargeable battery which charge through the Solar Cell LCD display for showing the daily schedule[6].

Microcontroller (89s51)

Microcontroller is the heart of the device which handles all the sub devices connected across it. We have used Atmel microcontroller. It has flash type reprogrammable memory. In this system use Atmel Microcontroller having 4K bytes of Flash programmable and erasable read only memory (PEROM) then provides a highly-flexible and cost-effective solution to many embedded control applications. The AT89C51 is a low power, high performance C-MOS 8-bit microcomputer with 4k bytes 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 pin out.

GPS Global Positioning System (GPS)

GPS is a navigational system that can pinpoint our position anywhere on the globe. The satellites transmit signals that can be detected by anyone with a GPS receiver. GPS receivers take this information and calculate the user's exact location. GSM is used for sending message about current location[3].

Working Representation

In this project, front part of bag is covered with solar cell. Which will continuously produce power through day light while we travel and it inside rechargeable battery for latter a usage like charging mobile phone or tab, laptop. Bag will even have an RF-Id reader with microcontroller chip to check if it matches with that days schedule or not and give beep indication to user from missing book or extra book, which is not required for the day[1]. One main feature of this bag will be a panic button, if it gets pressed by user during panic condition like getting 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 kidnapped or rape attempt or material 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[5].
Bluetooth inside bag will be even used to track the mobile if it is in range of bag or not and if Bluetooth linkage between mobile and bag breaks then alert beep and vibration is generated in mobile and bag as well to alert user of missing device[2].

IV. DISCUSSION AND RESULT

Fig:Smart Bag

Looking at digital era this project has been designed and developed to efficiently utilized natural resource i. e Solar energy . This smart bag consist of inbuilt circuit which provide mobile battery to individual at cheapest cost. Battery will be charged during day time with the help of Solar energy and can be utilized to charge electronics devices when required whether it is smart phones or laptop or any other device.

Additional feature has been added to facilitate Students not to miss textbook as per college/school time tables RF- Id has been used to make sure all books are carried in the bag if any missing book from the time table will be notified

V. CONCLUSION

The functionality of "Smart Bag" is it charge the all kind of gadgets through rechargeable battery. And battery is automatically recharge through the solar panel. Apart from this its also show the daily schedule of person on the LCD screen which is placed on the front part of the bag.

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