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3-in-1 Trecking 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. This bag is also useful for 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. This project is implemented using a node MCU, GPS module, Bluetooth module, power bank, solar panel, temperature sensor.*

Key Words: **GPS Module, GSM Module, Power Bank, Temperature Sensor, Bluetooth Module, Fingerprint Sensor, Solar Panel, Node MCU, Bag**

1. INTRODUCTION

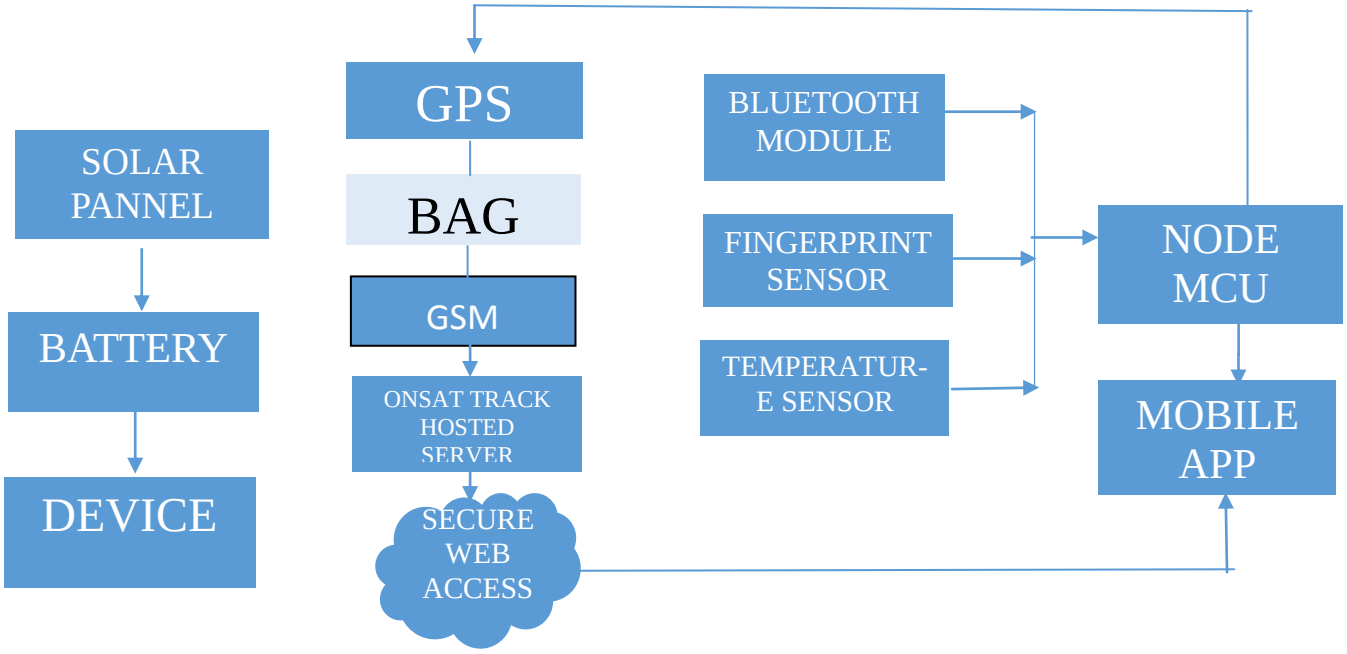
In our day to day life travelling has become one of the important aspects for human being. Generally for travelling purpose people uses normal luggage bags or suitcase but in today's world such types of bags are not safe from the security point of view and less hard work and comfort of having better journey.

Smart bag is designed in such a way that it is light weight luggage bag which is modified with advanced electronic technology for the purpose of advanced security system and also made the human travelling facilities more efficient with less effort.

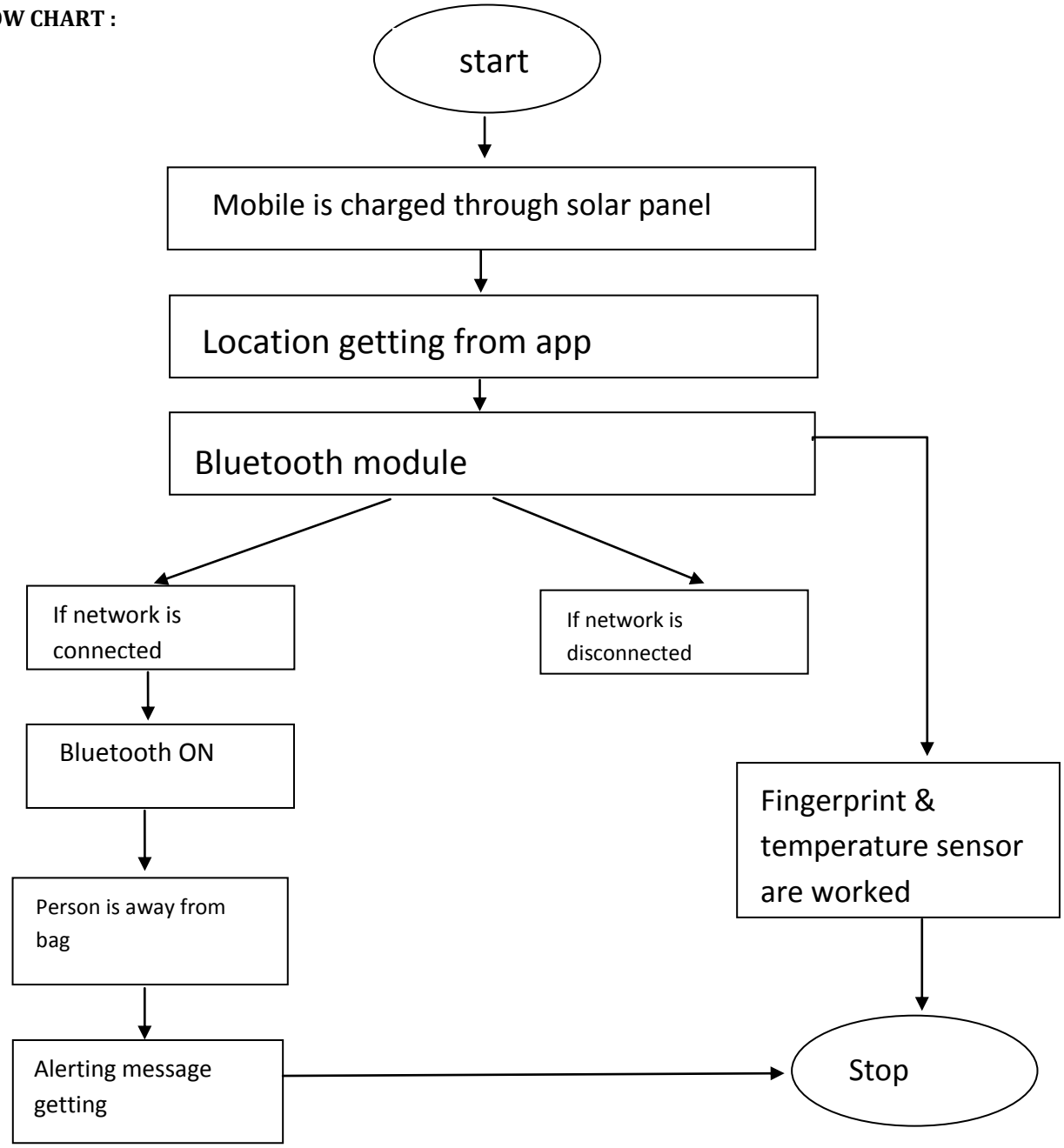
It consist of solar cell which will be used for charging various devices, Bluetooth module is used to safety, GPS module is used to tracking purpose , Temperature sensor is used to sensing the body temperature.

The system is also able to track the location of the handbag by using GPS. Mostly Bag tracking systems are based on GPS and GSM. Short Messaging Service (SMS) is a feature available on all mobile phones which allows a small amount of text to be sent between one user and another.

2. BLOCK DIAGRAM



3. FLOW CHART :



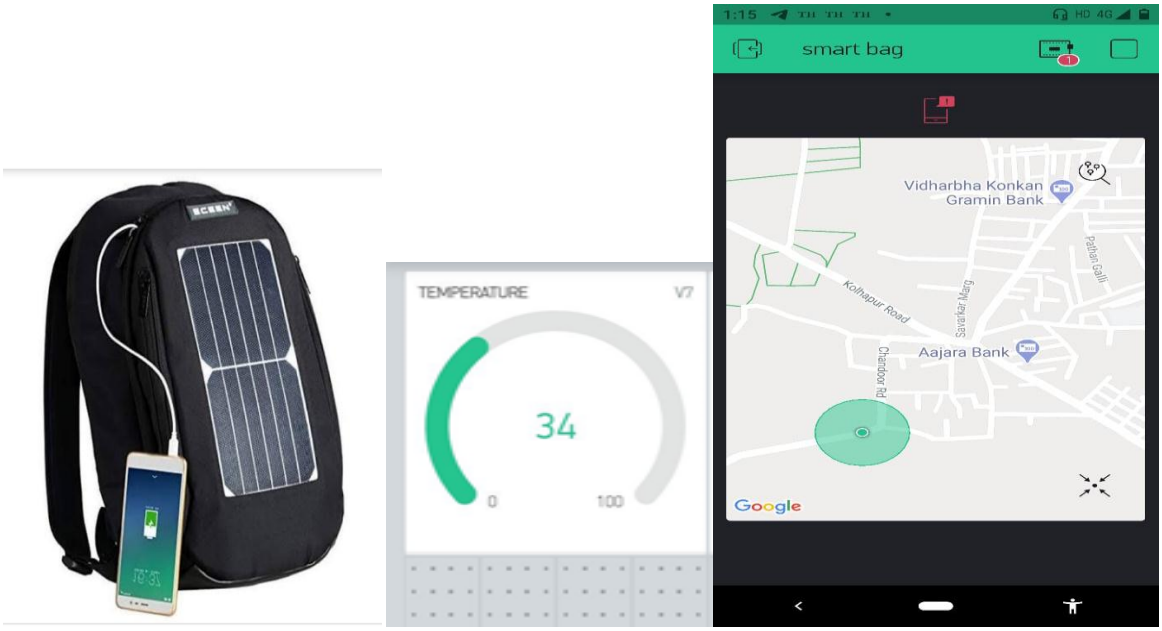
4. METHODOLOGY :

1. Solar panel is connected in front of the bag. Whenever sun rays are falls on solar panel it absorbing sunlight with photovoltaic cells, generating direct current (DC) energy & then converting if to usable altering current (AC). Energy with the help of inverter technology. After this process mobile is charged through solar panel.
2. Then feature of tracing and tracking the bag using GPS and GSM are locate the accurate position of bag. GPS system to provide real time tracking over the internet by TCP/IP connection through java applications developed specifically for it.
3. Proximity detection is used to keep yours luggage close. If someone unknowingly took your bag and is strayed outside the range of your Bluetooth signal then alert message will display on your mobile app.
4. Temperature sensors are devices to measure temperature readings through electrical signals. It is the most often-measured environmental quantity. This might be expected since most physical, electronic, chemical, mechanical, and biological systems are affected by temperature. Certain chemical reactions, biological processes, and even electronic circuits perform best within limited temperature ranges. This sensors are most purposely used for back pain person. In these projects, we compute one heating circuitry. We set here one particular temperature range.

These range is useful for back pain person. Whenever the range is beyond the limit then heating process is stop and when the range is below the limit heating process is start again.

5. Finger print sensor are used for security purpose. The scanner uses a light-sensitive microchip (either a CCD, charge-coupled device, or a CMOS image sensor) to produce a digital image. The computer analyzes the image automatically, selecting just the fingerprint, and then uses sophisticated pattern-matching software to turn it into a code.
6. The ESP32 is a low-cost system-on-chip (SOC) series created by Espressif Systems. It is an improvement on the popular ESP8266 that is widely used in IOT projects. The ESP32 has both Wi-Fi and Bluetooth capabilities, which make it an all-rounded chip for the development of IOT projects and embedded systems in general.
7. The Heart of these project is node MCU that is nodemcu-ESP32S is one of the development board created by Node MCU. It is based on ESP32 microcontroller. That boasts Wi-Fi, Bluetooth, Ethernet and low power support all in a single chip. It controls all the modules and sensors in project.
8. Blynk is a new platform that allows you to quickly build interfaces for controlling and monitoring your hardware projects from your IOS and Android device. After downloading the Blynk app, you can create a project dashboard and arrange buttons, sliders, graphs, and other widgets onto the screen.
Blynk app display all the sensor information and which is useful to user.

5. SIMULATION RESULTS :



Solar calculation:

1) power bank battery capacity = 9600mAh
= 9600mAh/2000mA = 4.8 hrs =5 hrs

2) solar panel voltage = 6v
3) solar panel current =250 mA
4) total no. of solar panels= 6
total voltage of panel = 8v (panels are connected parallely)
total current of panel = 1.5A (panels are connected parallely)
5) Buck converter (XL4015E1) output = 5v = 2A= 95% efficiency

Temperature & location tracking will be displayed in blynl app.

6. CONCLUSION:

This paper focused on the parameters like mobile charging, locating missing or stolen bag, calculate body temperature, fingerprint lock system. 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. Here we try to solve the dragging of luggage difficulty and also providing better security and intelligent features that suitable for modern era. The inbuilt power bank can provide sufficient power and at the same time share power to users gadgets like smartphone, laptops etc.

7. ACKNOWLEDGEMENT :

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