

LUGGAGE TRACKING SYSTEM USING RFID

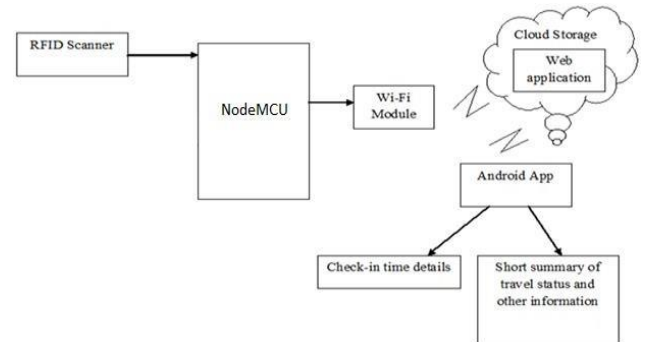
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ABSTRACT - Huge sums of money are spent by airport administration in the search for missing luggage and its return to the owner. This is so that luggage can be monitored using the barcode on the luggage's label. Barcode scanning is challenging since there are several factors that slow down the scanning process. By use of our project, we hope to alter those circumstances. We swap out every barcode scanner with an RFID scanner and every RFID tag for a barcode tag. When a piece of luggage passes in front of a scanner, the luggage's tag is read to determine its location.

dependent on the scanner's position, updated onto the cloud. If the situation arises when the luggage has been placed on the conveyer belt

1. INTRODUCTION

Many people use the airline business to travel farther distances. Every time the luggage is delivered to the check-in counter, a strap with a barcode will be removed from it. The barcode can be used to access all of the passenger's information, and barcode readers will be installed at specific frequencies so that the luggage can be followed throughout the entire process and sent in the right direction. The current luggage tracking technology cannot handle a large enough volume of travelers. The barcode scanners used to work well for lower numbers, but as the number has grown, they are no longer able to operate well. To scan the barcodes on each piece of luggage, a person must be present, which



1.1 BLOCK DIAGRAM

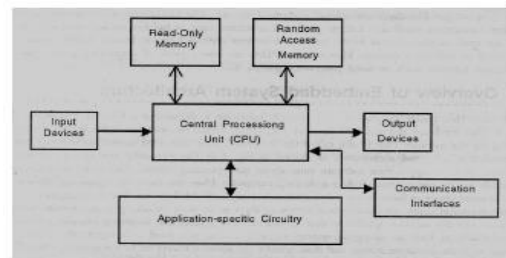
Fig 1. Block Diagram

1.2. EMBEDDED SYSTEM

An Embedded System is a combination of computer hardware and software designed to perform a specific function.

The various building blocks of the hardware of an embedded system are

- Central Processing Unit (CPU)



- Memory (Read-only Memory and Random Access Memory)
- Input Devices
- Output Devices

Fig2. Embedded System

2. ALGORITHM

STEP 1: Arrange the setup. Connect the proposed system to the power supply to get power ON for further steps to be carried out.

STEP 2: Scan the RFID tag onto RC522 scanner so that the card id will be recorded onto the Arduino.

STEP 3: Send all the passenger data onto cloud, so that the data can be retrieved onto the app.

STEP 4: If the destination of the luggage is same as the flight onto which the luggage is going, then proceed the luggage. If not, stop the execution of code and give an alert to the Airport management.

STEP 5: Remove the setup from power connection after usage.

STEP 6: Retrieve the data onto the app. NodeMCU

NodeMCU is an open source IoT platform. It includes firmware which runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which is based on the ESP-12 module. The term "NodeMCU" by default refers to the firmware rather than the development kits. The firmware uses the Lua scripting language. It is based on the eLua project, and built on the Espressif Non-OS SDK for ESP8266. It uses many open source projects, such as lua-cjson and spiffs.

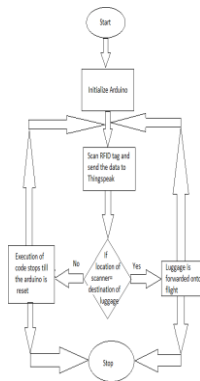
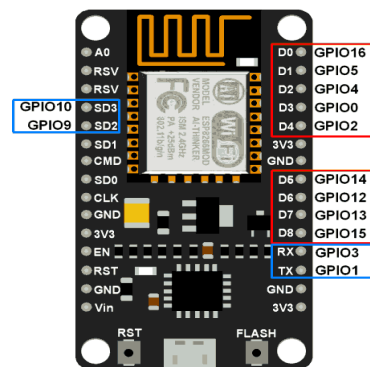


Fig 3. Flow Chart

3. COMPONENTS

1. NodeMCU
2. RFID Scanners
3. RFID Tags
- 4 Powersupply

Fig 4. NodeMCU

3.1 RFID Scanner & Tags

A radio frequency identification reader (RFIDreader) is a device used to gather information from an RFID tag, which is used to track individual objects. Radio waves are used to transfer data from the tag to a reader.



Fig 5. RFID Scanner

RFID tag consists of an integrated circuit and an antenna. The tag is also composed of a protective material that holds the pieces together and shields them from various environmental conditions. The protective material depends on the application.



Fig 6. RFID Tags

- Medical electronics
- Telecommunications
- Wireless technologies
- Security

3.2 Thing Speak

OPERATING PRINCIPLES In order to connect an object to the IoT, several things are needed in the hardware and software realm. First of all, if one wishes to go beyond simply connecting data from a computer, objects to gather

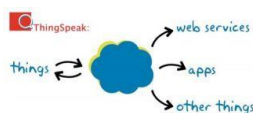


Figure 1. ThingSpeak representing itself as 'cloud' interface

(sensors) or receive (actuators) data are necessary. For example, a digital thermometer can be used to measure temperature. In this case, the data needs to be uploaded to a network of connected servers which run applications. Such a network is commonly referred to as 'the cloud'. The cloud utilizes the process of visualization,

meaning that several physical servers can be connected and used in tandem, but appear to the user as one machine.

Fig7. Thing Speak

4. APPLICATIONS

Nearly 99 per cent of the processors manufactured end up in embedded systems. The embedded system market is one of the highest growth areas as these systems are used in very market segment.

- Consumer appliances
- Office automation
- Industrial automation

5. CONCLUSION

As the RFID tag has been scanned at the RC522 scanner present in the airport, the data of the luggage has been taken and the location of the luggage has been updated to the cloud. When the tag is scanned at RC522 scanner present at Delhi flight, it is checked whether the luggage belongs to Delhi flight. If the luggage's destination is Delhi, the luggage is preceded. If not, the execution of the code has been stopped and an alert has been sent to the Airport management so that the NodeMCU has to be reset again, to work perfectly. In this way, we have solved the Luggage management system in Airport with our product.

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