



Airport Baggage Conveyor and Voice Notification Using RFID Technology

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ABSTRACT: This work intends to automate and provide a secure, human intervention- free air baggage security cum access system. The aim is to automate, minimize and quicken the process of air baggage handling and also reduce the discrepancies. As the global economy grows and the pace of business transactions accelerates, the air transport industry faces greater challenges and demands. Customer expectations for shorter delivery times and better availability of in-transit service continue to grow. To meet these ever-increasing demands, the air transport industry must provide higher levels of service and guarantee higher levels of security. A baggage handling control system is a type of conveyor system installed in airports that transports checked luggage from ticket counters to areas where the bags can be loaded onto airplanes. Also transports checked baggage coming from airplanes to baggage claims or to an area where the bag can be loaded onto another airplane. Although the primary function is the transportation of bags, typically will serve other functions involved in making sure that a bag gets to the correct location in the airport. The process of identifying a bag, and the information associated with it, to make a decision on where the bag should be directed within the system is known as sortation.

KEYWORDS: PIC16F877A Microcontroller, ARP 9600, RFID Tags, RFID card reader, GSM Module & DC Motor

I.INTRODUCTION

This project is used in Airports to announce the name of the particular person to collect their baggage at the baggage counter. Nowadays the baggage will be moving in a conveyor belt and the concern person will watch for their respective bags and collect them. This project, instead automatically announces the name of the particular person to collect it so that the persons need not stand at the conveyor. This helps to reduce the congestion at the baggage counter.



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A RFID Tag is attached to every baggage. A RFID reader is fixed on the conveyor. So when the baggage comes near the reader, its code is read by the reader and it checks the database for the name of the particular person and announces it through the speaker.

For announcing the name we have used a APR 9600 which is a voice storage and retrieval device an LCD Display is also provided to display the name in the lcd for the conveyor movement we have used a stepper motor the Main Heart of the system is the PIC16F877A Microcontroller which is used to control every operation.

II.SYSTEM MODEL AND ASSUMPTIONS

Many embedded systems have substantially different designs according to their functions and utilities. In this project design, structured modular design concept is adopted and the system is mainly composed of PIC16F877A Microcontroller, DC motor, DC motor driver, MIC, APR 9600, speakers, RFID Tags, RFID card reader. The PIC16F877A Microcontroller is the heart of the project it is programmed such that it keeps on commanding and controlling the complete action through peripherals connected.

III.EFFICIENT COMMUNICATION

Primarily we have used RFID tags this tags are attached to each bags of the passenger in the boarding section and each RFID tags has a unique number this number allotted to particular passenger is noted and this details are saved in the Microcontroller. During dispatching of this bags the bags keep rolling on the bag trolley here we have installed our RFID card reader and when the bags moves near the RFID card reader the reader detects the particular RFID tag number this is compared with the tag number which previously allocated and the particular passenger name is detected by the Microcontroller. And the Microcontroller signals the particular passenger through a LCD display connected to it at the same time it sends the passenger name to APR9600 and this is a device which has an MIC connected with it and it is capable of recording a voice message and we just play this audio message using speakers connected to it.

The trolley motion is also controlled through Microcontroller by DC motors this is achieved through a DC motor driver connected to it and whenever a passenger places his bag on the trolley until the RFID tags are attached to bag and the particular passenger number is noted the trolley will be in stop condition and if this initial process completed then the controller gets a signal and the Microcontroller imitates or starts the DC motor and immediately the trolley starts moving and the trolley loads the bag in boarding area and allows the next passenger to place his luggage.

Similarly while dispatching the luggage the DC motor is turned on when the luggage is placed on the trolley and if once the luggage reaches the passenger the DC motor is turned off and once if the luggage are collected by the passenger again the DC motor is turned on by the Microcontroller so that it can pick the next luggage.

IV.HARDWARE COMPONENTS

1. PIC16F877A Microcontroller.
2. LCD Display.
3. DC motor.
4. DC motor driver.
5. MIC.
6. APR 9600.
7. Speakers.
8. RFID Tags.
9. RFID card reader.

V. SOFTWARE TOOLS

1. Protues Design
2. CCS Compiler for Programming
3. PICLIT2 for programming

VI. ADAVANTAGES

1. Installation and maintenance cost is less.
2. Economically viable.
3. Bag and luggage missing can be prevented.
4. Passenger waiting time for collecting of luggage is reduced.

VII. BLOCK DAIGRAM & ARCHITECTURE

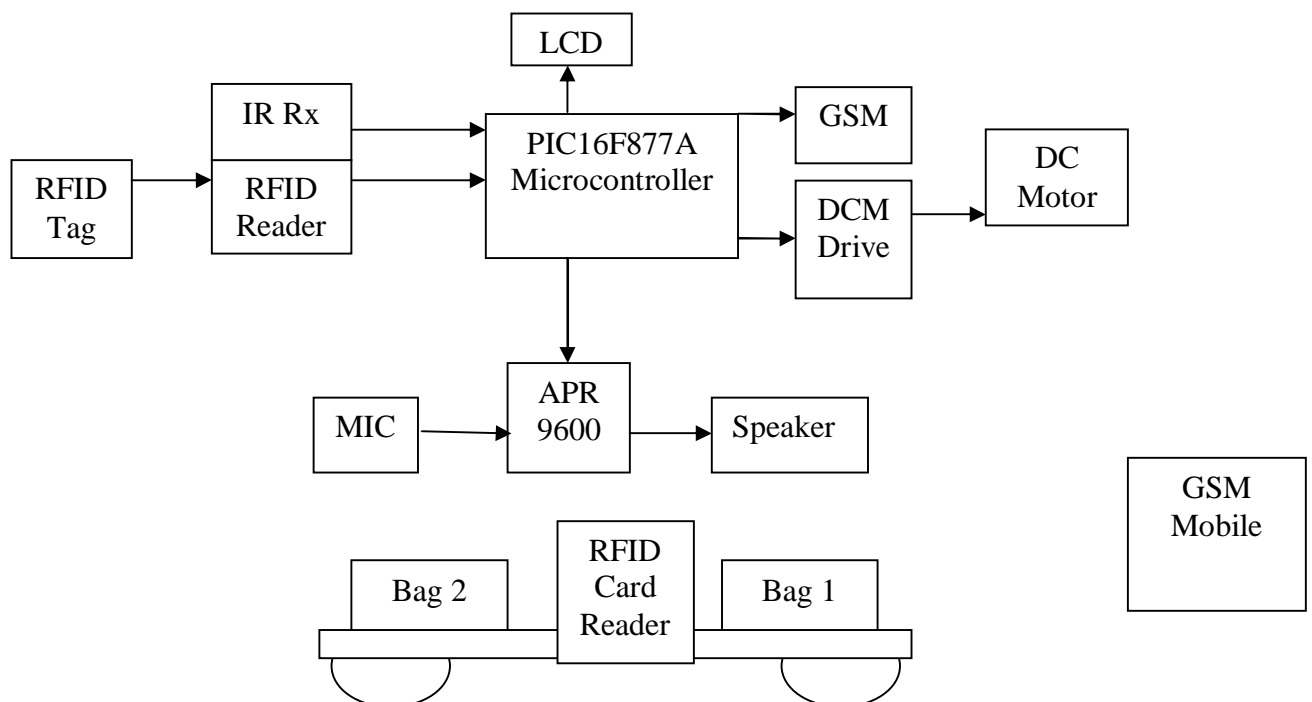


Fig .1 BLOCK DAIGRAM

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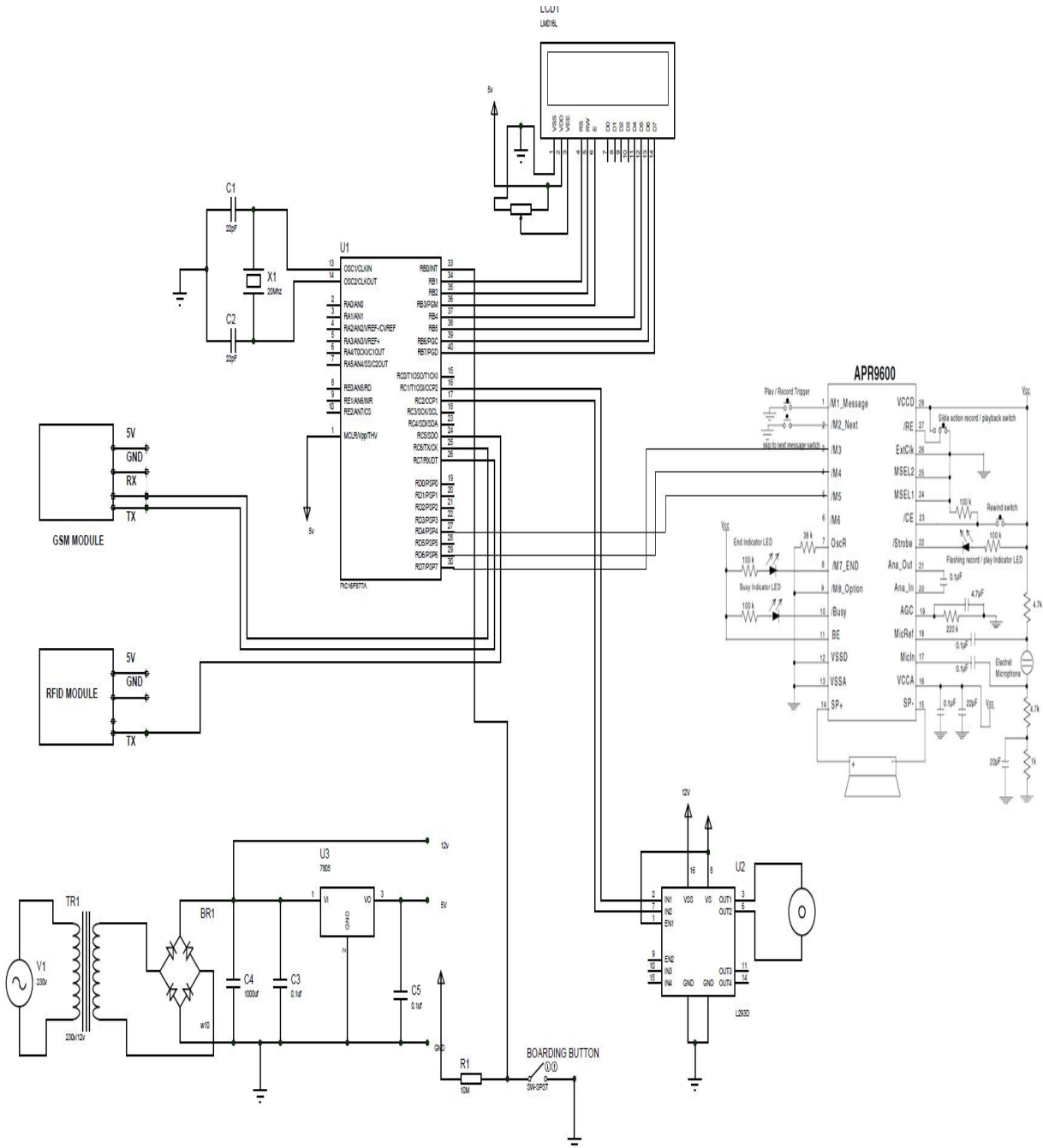


Fig .2 ARCHITECTURE



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VI.CONCLUSION

There have been many attempts to solve these problems and came to the conclusion that the use of RFID in this system is one of the best ways to decrease the problems. Current bag tags include a bar code. These bag tags are printed using thermal or barcode printers that print on an adhesive paper stock. This printed strip is then attached to the luggage at check in. This allows for automated sorting of the bags to reduce the number of misrouted, misplaced or delayed bags.

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