# SMART SHOPPING FOR VISUALLY CHALLENGED



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# ABSTRACT

- Disability is the state of a person in which one has to depend on others for their own needs.
- Visual impairment is one of the disabilities of a human being.
- The visually impaired people face a lot of challenges in their routine life
- One such challenge is that they have to depend completely on others for purchasing
- Till date numerous methods had been proposed to enhance the life style of visually impaired and blind people.

- Still purchasing products in the supermarket without others support is tricky one for them
- They have to depend completely on others for purchasing.
- In this paper a solution has been given as a guidance for them to identify and purchase their products in the supermarket.
- Radio Frequency Identification (RFID) technology is implemented to identify the products.
- The audio instructions will assist them inside the supermarket based on the real time situations.
- The ultimate aim of this system is to eliminate others support for visually impaired people in shopping and provide them a convenient and sophisticated environment.

# PROPOSED SYSTEM

- The proposed system uses PIC microcontroller and RFID (Radio frequency Identification) technology to identify the products in the supermarket.

- Identification is the core concept in user-oriented applications and ubiquitous computing. RFID technology is used for identification and to authenticate tags that are mounted in any product or individual

- It uses radio waves to identify objects and people.

- Fig. exhibits the basic operation RFID system.
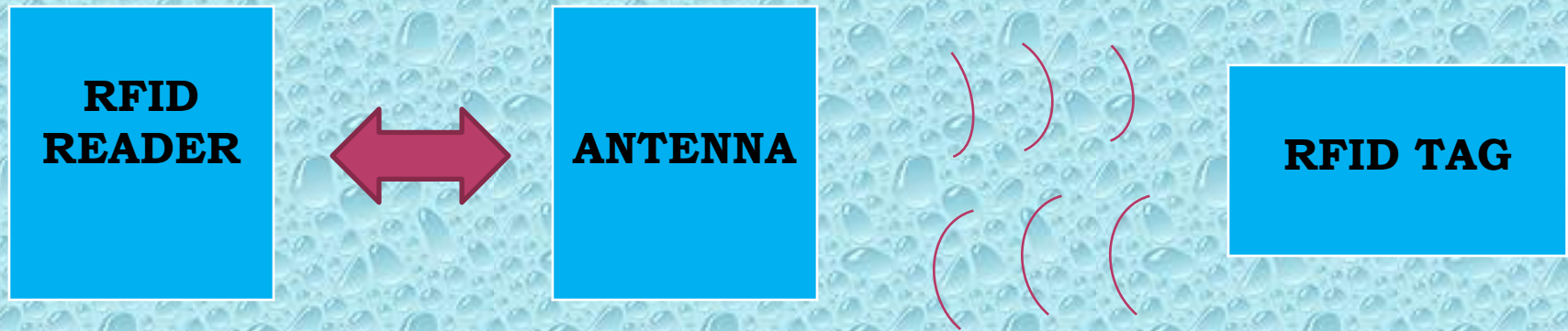
**RFID READER** ⟷ **ANTENNA** ))) **RFID TAG**

- RFID technology is used for identification and to authenticate tags that are mounted in any product or individual
- Purpose of RFID system is to provide data transmission through the portable tag that is read with RFID reader and processes it according to the application

- Information transmitted by using tag offers location or identification along with other specifications of product tagged like expiry date, weight, and its price.
- The RFID system consists of a passive tag and reader
- Passive tags are preferred because it does not need external power source.
- The low power RFID reader reads the tag information and transmits the data to the microcontroller.

# HARDWARE REQUIREMENTS

❖ PIC Micro controller

❖ 12V Power Supply

❖ RFID Sensor Board

❖ Bar code tag

❖ Voice Sensor board

❖ Speaker

❖ LCD display

❖ Mic

# PIC MICROCONTROLLER

- PIC microcontrollers are highly efficient and low cost devices which maximize the system reliability.

- The proposed system uses 8 bit PIC microcontroller of series PIC16F877A

- It is a RISC processor and follows Harvard architecture

- It has an inbuilt 8-channel ADC and Watchdog timer with on chip RC oscillator. It consumes low power with operating voltage range of 2.5V to 6V
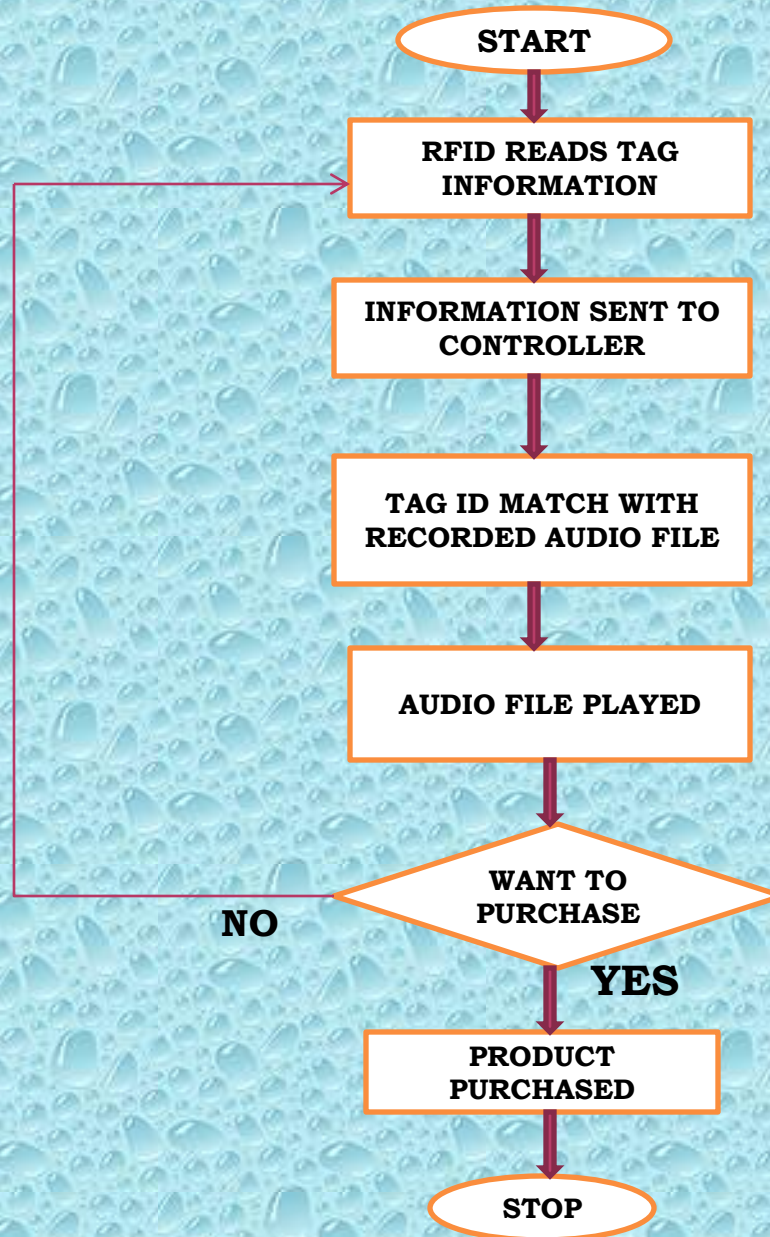
# BLOCK DIAGRAM
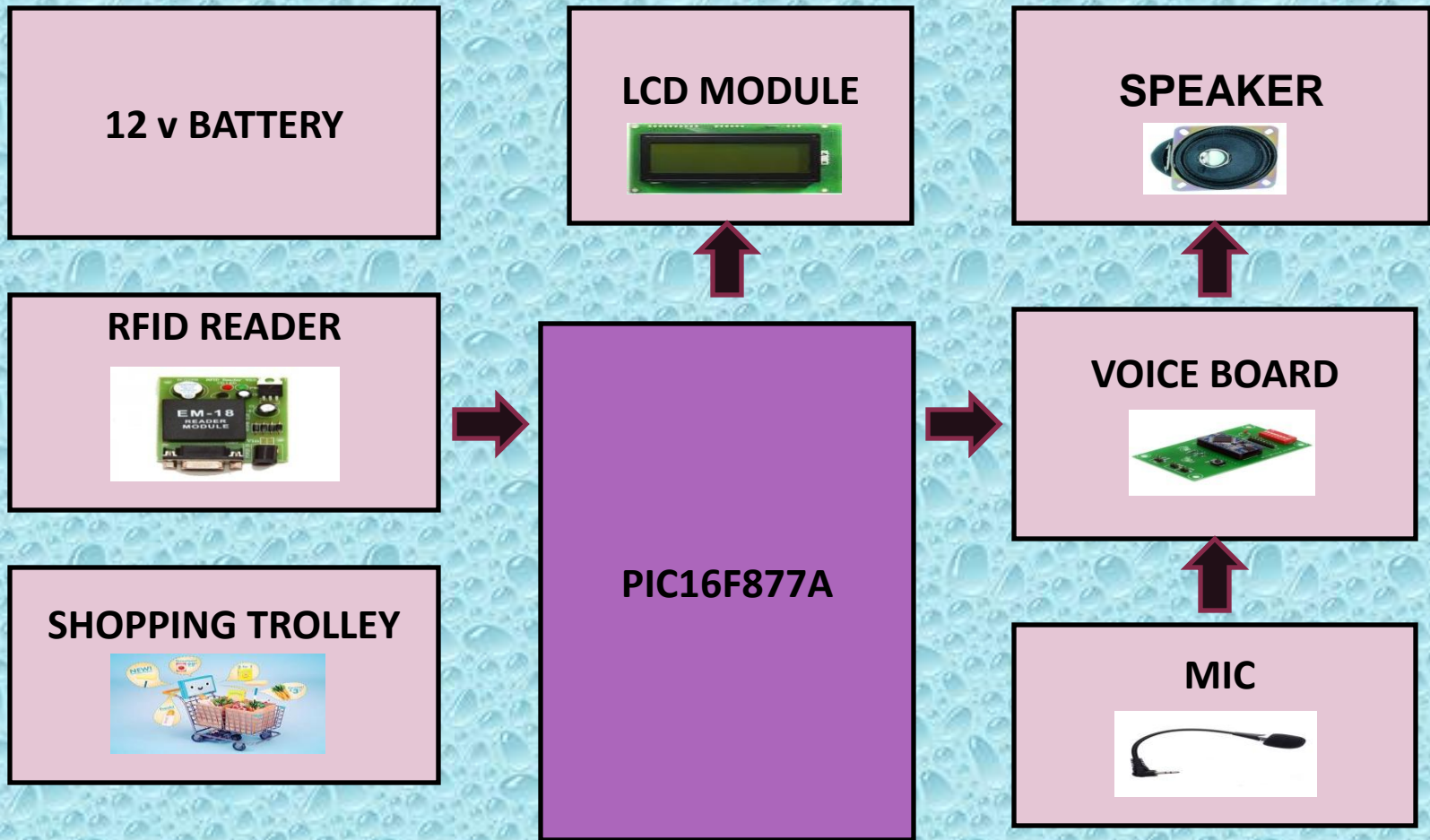
# SYSTEM DESCRIPTION

- In the supermarket, the products are segregated and placed in shelves. The passive RFID tags are mounted on the each shelf

- The tags are energized using radio waves transmitted by RFID reader

- To identify the required product an audio file is recorded by using APR9600 IC.

- The APR9600 is interfaced with the controller

- The RFID reader reads the tag information which has a unique code and sent to microcontroller

- The microcontroller receives the unique EPIC (Electronic Product Identification Code) stored in the RFID tag and process the code

- It is predefined in the microcontroller. Then the received code is matched with the corresponding audio file and played through the speaker.

- The overall system flow is explained in the flow chart

# FLOW CHART EXPLANATION



START

RFID READS TAG INFORMATION

INFORMATION SENT TO CONTROLLER

TAG ID MATCH WITH RECORDED AUDIO FILE

AUDIO FILE PLAYED

WANT TO PURCHASE

NO

YES

PRODUCT PURCHASED

STOP

# APPLICATION:

- DEPARTMENTAL STORES

- PHARMACIES

- SHOPPING MALLS