

Object Identification For Blind People Using RFID

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Abstract-Radio Frequency Identification (RFID) technology has applications from retail sector to health sector. This paper presents a low frequency RFID based Object Identification System (RFASSIST) that has been produced to help blind people to identify various objects. To provide assistance to the blind, the framework combines RFID based object identification with audio messages. It also displays the object's name on LCD. This project stores the date and time of identification of object on PC using RS232 serial communication. The data was successfully stored in computer's memory which can be later used as a database in certain applications.

Keywords-MSP430 microcontroller, License with RFID tag and RFID reader, Speaker

I. INTRODUCTION

Blindness is a condition that affects many people around the world. This condition leads to the loss of the valuable sense of vision. The need for assistive device was and will be continued. There is a wide range of technologies and software existing for visually impaired individuals. The blind people truly requirements in identification of object. To solve this problem we have implemented the object identification system.

Frequency Identification (RFID) has been an emerging technology in recent years. A basic RFID system consists of a reader and tags. The module is flexible that the number of objects to be identified can be altered according to the number of items present in the house. The objects will be attached with a RFID tag whose address is predetermined. The tag is the reference to the object. The product can be incorporated in the form of a glove which will be worn by the visually challenged and has a RFID reader. As when the hand with the glove moves near an object, voice information of the object is played through a speaker attached on the glove due to the combined action of RFID tag, RFID reader and IC APR 9600 (Voice Recording IC). Studies are being extensively conducted to explore the use of RFID in the development of Blind Aid. RFID, or radio frequency identification, is one such technology that could be used to supplement organizational and navigational aids.

This system deals with the design and development of a object identification to help the blind people which is being used for identify products. We are using MSP microcontroller to do the process. As the MSP430 is the most efficient technology product. This microcontroller is more efficient and cost wise low. RFID appears as an efficient solution to provide object identification. This also gives an overview of the RFID technology. RFASSIST uses an microcontroller to interface RFID reader module.

II. LITERATURE SURVEY

The RFID has come up as emerging technology which started evolving in world war II. RFID system has several components which include tags, antennas and reader. This set up can be used either in high frequency or ultra high frequency. Though it was not an identification device it can be considered a predecessor to the RFID technology.

[1] The Radio Frequency Identification Device used in today's industry are being used in many areas that need identification, inventory control and automation. The use of high frequency and ultra high frequency signal to identify objects which can be considered as tags here, has been helpful in developing various application.

[2] Radio Frequency range is considered to be from 3-30Mhz has a wavelength of 10-100m and has various application in software. The very high frequency of radio waves consist frequency is around 300-3000mhz with wavelength of 10-100cm used for broadcast television, mobile telephone, wireless networks.

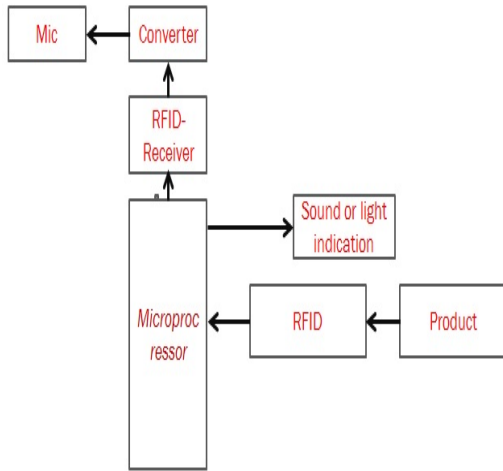
[3] The conventional method of the communication of blind people has been the Braille system, which helps them read and write a cell made up of six dotted positions which are arranged in rectangle shape. The RFID based identification will not only help people navigation but let them use the system with the exiting Braille code or without it where the RFID is the main guidance and identification device.

[4] Aided dog assisting A specially trained dog assisting the blind in obstacle avoidance, but usually not aiding in way finding, e.g. the dog is trained to stop before obstacles, reacts to commands on walking directions. In spite of their

great usefulness, guide dogs are a rarely used aid- only about 1% of the visually impaired use it. Advantage: Good in following familiar paths, good overall obstacle avoidance, trained for selective disobedience when sensing danger to his owner.

Disadvantage: Very costly, guide dog service period in on average 6 years, regular dog up-keeping.

III. BLOCK DIAGRAM

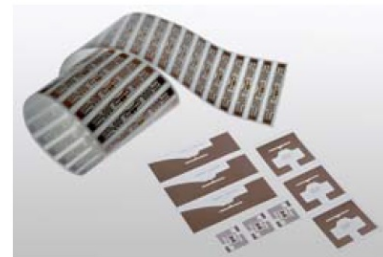
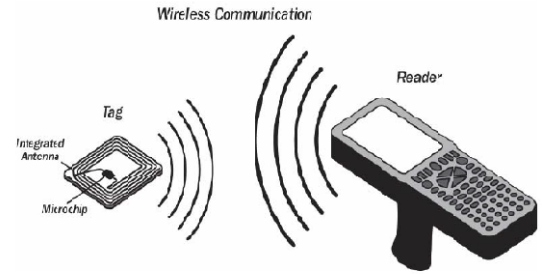


IV. SYSTEM DESCRIPTION

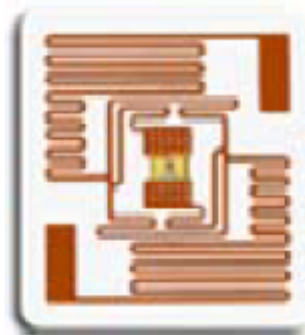
The block diagram shows that the working description of a object identifies for visually challenged people. This block consists of MSP 430 Microcontroller, RFID tag, RFID reciver. We use RFID tag and RFID sensor to sense the object and the identified object will be given as the output as voice signal. First every product will be using separate RFID tag to identify them. With the help of RFID reader product will be identified by the micrcontroller and send the signal to the converter. Light identifier helps to find the obstacles in front of them. The converter will convert the identified product into speech output. The MSP430 plays the vital role in the analysing and storing the data for the further process to takes places. This is the working principal behind the object identification process.



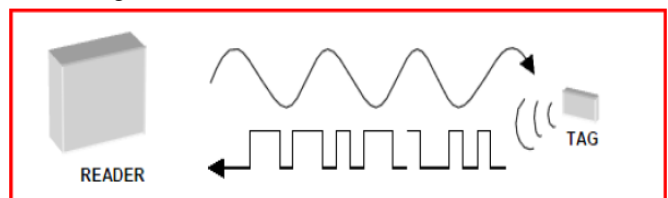
The figure shows the RFID tag and the scanner. The RFID scanner has different model, it has a diplying modele. The RFID tag will be different in size it has a magnethi winging. Each and every RFID tag differs from each other.



This figure shows that the RFID scanner and the tag which is connected with wireless transmission. Fig shows the different typed of tags used for the identification.



The fig shows the different types of tags and the model of the tags used for scanning the lable. These tags are winged with magnetic strips which produces a unique signal for each tags.



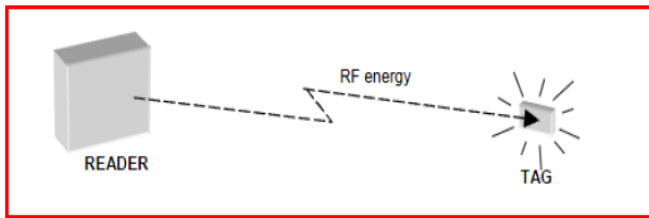


Fig shows thw working of the RFID scanner. This is how the tag produces the clock signal and the reciver will identify the clock signal and it will match with the saved input signals.

V. CONCLUSION

We have implimented this RFID scanning and RFID tag in the supermarkets.This system will read the RFID tag of the product the gives the details of the particular product as speech output. Light indicator does the obstacle identifying so blind people can avoid the obstacles in path. This design is simple and can be operated in low power supply and it is cost efficient and more accurate. In feature this model can be connected with the Internet of things to impliment in more wider model.

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