MAN FOLLOWER CART WITH WIRELESS BILLING

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Received: February 06, 2019
Accepted: March 08, 2019

ABSTRACT: Today’s life is so busy and requires comfort for all things. People find the shortcuts for all the basic needs in order to reduce time use. The shopping area is also so time consuming and requires to handle the more time for billing and purchasing the products in shopping mall and super markets. This situation is increasing day by day. In this paper the smart system is introduced to reduce waiting time and give smart result like displaying bill amount at the time of shopping. So the customer is able to buy required products according to his/her budget. It is also not required to wait in queue for scanning each product for billing. And no need to pull the shopping trolley all the time.

To implement this system different electronic components are used like sensors, RF ID scanner and display.

Key Words: ATmega, RFID reader, Shopping cart, Smart Billing system, RFID reader, UV sensors.

INTRODUCTION:
Nowadays, most of the people around world use the technology for comfort life. The people are always try to find technology. People visit supermarket so that they get all there necessary products at one place and this saves their time. But the customer may not have prior knowledge about the total costing of product and for billing they need to stand in queue for long time this problems may lead to customer frustration.

For the ease of customers we are developing automatic moving shopping trolley using sensors. Sensor on the trolley will track the particular customer and keep moving. If the customer stops the trolley will also stop at maintained distance. After the customer is done with shopping billing is done at the billing counter. Many times there is a long queue at the billing counter. The system of billing will be placed in the trolley. The product cost will get added after scanning product and get displayed on the LCD. Thus the billing is done there itself and the customer need not wait for long time for billing.

LITERATURE SURVEY:
Design application Human Follower Automatic Trolley for that decision has been taken from some robot follower that has nowadays with a manual trolley that present.

1. Radio Frequency based Remote Operated SPY Robot T. Krishnan et al. were creating SPY Robot operated on Radio Frequency. Robot can collect audio and video information’s from the application platform and sent through RF signals to a remote station. For Automatic Human Following Robot the concept of RF Remote Controller are use.[2]

2. Infrared Sensor Based Target Following Device for a Mobile Robot Youg J Wen et al. was report the sensory setup and algorithm for target following on the mobile robot. Transmitter is installed on the target. This target is determined by the set up of nine IR receivers. IR sensor is not accurate compare to the ultrasonic sensor.[4]

3. RFID Enabled Smart Billing System Vanitha Sheeba and Brindha Rajkumari et al, proposed concept of RFID and ZIGBEE. which transmits total bill to the server and then bill is recived by the worker at the bill counter with ID of customers. But due to high cost of ZIGBEE, RF Module is used for wireless billing[3]

4. Cash Register Lines Optimazation System Using RFID Budic et al. developed a system for shopping using RFID. RFID is used for scanning the product and information is stored in the database which could be paid in central bill or online.[1]

PROPOSED METHODOLOGY:
The selection of the components depend on the requirement of the project specification. Project design consist of the following elements:
Controller: ATmega32 is an AVR based 8-bit RISC machine. It operates from 4.5 to 5.5volts DC. It combines 32KB ISP flash memory with read-while-write capabilities 1KB EEPROM, 2KB SRAM, 23 GPIO Lines, 32 general purpose working registers, serial USART. It has features such as timers, ADC, PWM & serial interface. Processing speed ranges 0 to 16MHz.

RFID reader: EM-18 is used which operates at 5VDC and less than 50mA current. The working frequency is of 125 KHz and the distance coverage is 10cm. It continuously emits the RF signal within its range and whenever the RFID tag is come inside the range it retrieves the information stored in the tag.

RFID Tags: These are made from a microchip for storage of unique number and coil inside it acts as antenna which radiate its stored data. Depending upon battery there are two types of tags Passive and active. When the tag is come within RFID reader range, the reader emits RF signals which gives power to passive tags and re-emits the data signal to the reader.

Ultrasonic sensors: When the input signal is applied, it will generate an sound waves. When any obstacle comes in contact of the sensor the sound waves will reflect back in the form of echo and generates an electrical pulse. It is used to measure distance.

Ultraviolet sensors: Ultraviolet is electromagnetic radiation with a wavelength from 10nm to 400nm, shorter than visible light but longer than X-Rays. The UV Sensor is used for detecting the intensity of incident Ultraviolet (UV) radiation like UV radiation in sunlight. This form of electromagnetic radiation has shorter wavelengths than visible radiation.

CLCD: It is an character LCD. It has two rows and sixteen columns .Its has sixteen pins from which data is fed through eight pins. It requires supply of 5volts. It has proper functioning registers namely data and command registers. Data register takes ASCII values for characters to be displayed. Command takes values to make functional adjustment such as backlight, contrast, cursor position, etc.

DC MOTOR: In this DC geared motor is used operating voltage of 12volts and 0.5A. The rotation frequency is of 150 to 200rpm. Geared motors with the extra ring teeth which ensures uniform speed.

Motor Driver: Driver circuit is used which having capability of controlling motor rated up to 12volts. Mainly used to control the motor.

FLOWCHART:
Fig 2. shows the flow of operation. As customer moves forward the UV sensor sends data to the controller. Also the controller get input from the RFID reader about scanned product, it will calculate the total amount of scanned product and display on the LCD. The trolley movement is decided by the distance measurement. As distance is more between trolley and customer motor starts, and if distance is less motor is stop.
RESULT:
Product is scanned using RFID reader. As soon as the RFID tag comes in the range of RFID reader, the product gets scanned. Here first product which is scanned i.e chyavanprash is displayed with its price on the display. This is shown in Fig.3.

Likewise the product scanned are added into the list and the total price is displayed on the LCD. In Fig.4 the total product cost is displayed while the products scanned are Chyavanprash, Biscuit, Oil, Soap.

CONCLUSION:
This project will reduce customer efforts which is required to push the heavy trolley and no need to wait in billing queue and no need of thinking about budget. This will take the overall shopping experience to a different level. Thus with the help of the conclusion we can say that- Automatic moving of the trolley by using sensors technique will be a more feasible option in the future. The system based on sensors is well planned and reduces human efforts. GPS can be used to track the position of customer. Use of Zigbee can increase the communication range. Use of more number of DC motors will improve the product carrying capacity of cart.

REFERENCE: