"DRIVE THRU SUPERMARKET"

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Abstract - *Supermarkets are nowadays used by millions of people for the acquisition of an enlarging number of products. Product acquisition represents a complex process that comprises time spent in corridors, product location and checkout queues. On the other hand, it is becoming increasingly difficult for retailers to keep their clients loyal and to predict their needs due to the influence of competition and the lack of tools that discriminate consumption patterns.*

Keywords- *drive thru, supermarket, market, vegetables, sensors*

1. INTRODUCTION

Retailing has taken a long time to come to the present shape of diversity and development. Customer retention is the focus area of modern marketing which leads to value addition in growth and profitability of the supermarkets. In the competitive retail land scape, the success of the supermarket relies on customer retention as it is the major link to accomplish profitability. And this virtue of customer retention is mostly a result of customer satisfaction and loyalty. Behavior of the consumer is complex when associated with organized retail and specifically supermarkets. Customers have a range of choices available and a change in purchase pattern is supported by high disposable income. These complexities give scope for the study of the determinants of customer satisfaction, loyalty and retention in the new age Supermarkets. Most of the supermarkets understood the importance of customer retention for the success of the business in the modern competitive world.

2. EXPERIMENTATION WORK

Various process used for paper manufacturing

1. Selection criteria for component

2. Software used

1. Selection criteria for components

The components are selected on the basis of requirement, cost, and material quality, function and uses.

The purpose of selecting the Arduino Uno is that it easy to use software and its cost is low.it is basically used for coding for prototype models. And it is flexible. The purpose of a **roller bearing** is to reduce rotational friction and support radial and axial loads. The roller bearing is used in our project to give rotational movement to our rack system (the plates of rack system on which the products are kept).

L298 motor driver is used in our project because we needed a bi directional motor to rotate the racks in both the directions and the also because current we are supplying is of 12v and 3 amp.

The whole purpose of using the plastic gears was to reduce the cost since the plastic gears are cheap in cost.

Fr our project we have used 2 permanent magnet DC motor. The purpose this motor is used because it is cheap in cost and also matches our requirement. The torque carried by the motor A is of 15 N.m and motor B is 47 N.m 5V power is supplied from Arduino and 15V from SMPS.

The speed of the motor A is 10 rpm

The speed of motor B is 3 rpm

The Conveyer belt used is rubber because it was readily available in market and it was cheap

Acrylic sheets are used to give the support to the structure. The thickness of the acrylic sheets is 5mm so that it can stand our structure.

All the other components used are of standard specifications.

2) Software used

The software used for the designing of Rack system is Solid Works. Solid Works is a solid modeling computer-aided design (CAD) and computer-aided engineering (CAE) computer program that runs primarily on Microsoft Windows.
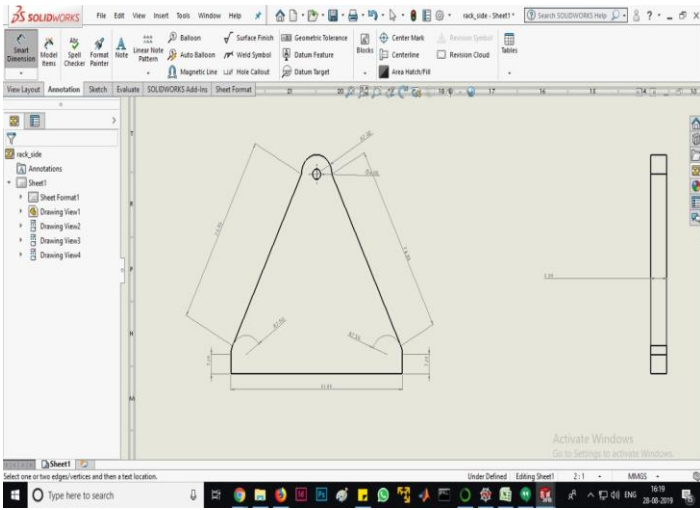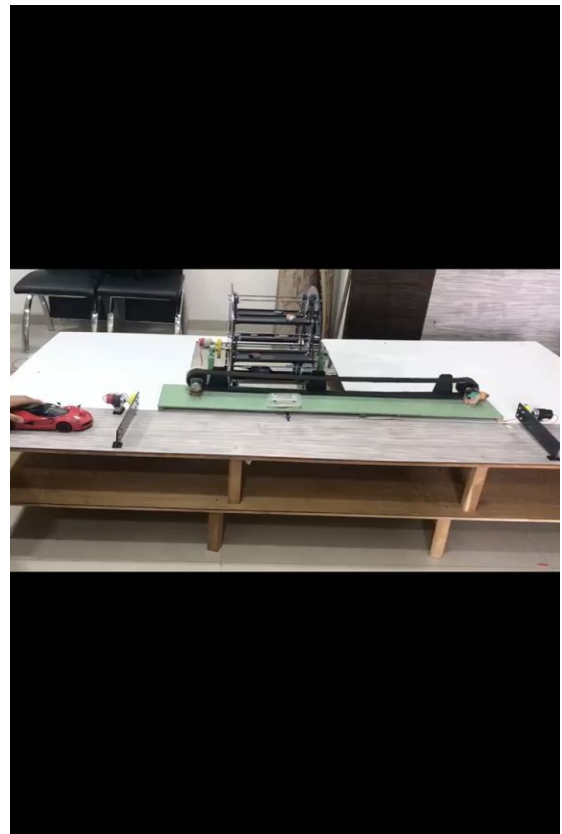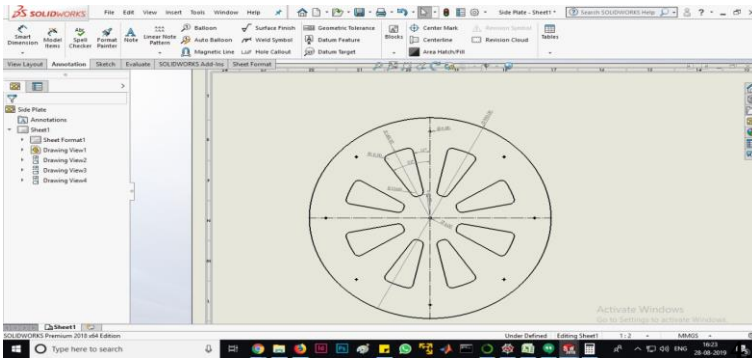

Fig -1: drawing

Fig -2: Model

3. PART LIST:

1. **Arduino uno**
2. **Roller bearings**
3. **Conveyer belt**
4. **Gears**
5. **IR obstacle sensors**
6. **Toggle switch**
7. **Push to on switch**
8. **Jumper wires**
9. **DC model**
10. **Bright rod**

DESCRIPTIONS OF COMPONENTS:

Arduino uno:

Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online

Roller bearings:
A rolling-element bearing, also known as a rolling bearing is a bearing which carries a load by placing rolling elements (such as balls or rollers) between two bearing rings called races. The relative motion of the races causes the rolling elements to roll with very little rolling resistance and with little sliding.

Conveyor belt:

The conveyer belt is one of the main parts of the project. According to our needs we found out the vendors selling conveyer belts made up of PVC material due to its durability and flexibility.

Gears:

A gear or cogwheel is a rotating machine part having cut teeth or, in the case of a cogwheel, inserted teeth (called

cogs), which mesh with another toothed part to transmit torque. Geared devices can change the speed, torque, and direction of a power source

IR obstacle sensors:

IR Sensors work by using a specific light sensor to detect a select light wavelength in the Infra-Red (IR) spectrum. By using an LED, which produces light at the same wavelength as what the sensor is looking for, you can look at the intensity of the received light

Toggle switch:

The toggle switch is a type of electrical switch that is identified by the presence of handle or lever that makes it possible to control the flow of electric current/signal from to a power supply to a device or within a device

Push to on switch

A push button is a momentary or non-latching switch which causes a temporary change in the state of an electrical circuit only while the switch is physically actuated. An automatic mechanism (i.e. a spring) returns the switch to its default position immediately afterwards, restoring the initial circuit condition

Jumper wires:

A jump wire is an electrical wire or group of them in a cable, with a connector or pin at each end, which is normally used to interconnect the components of a breadboard or other prototype or test circuit, internally or with other equipment or components, without soldering.

DC motor

A **DC motor** is any of a class of rotary electrical machines that converts direct current electrical energy into mechanical energy

Bright rod:

Bright rod is usually a carbon steel alloy which has had the surface condition improved by drawing, peeling or grinding over the hot rolled finish supplied by the steel mill.

5. WORKING:

- The car enters the supermarket and will move towards the section of products which he wants to buy. After coming near the section, the IR sensor of the gates will detect the presence of the car and will open accordingly.

- The customer will drive the car into the allotted space. After the car is stopped at the allotted space the customer then without getting off his car will choose the product which he wants to buy and from

the rack system with the help of the up and down push buttons though which he can control the racks and after selecting the products will put the products onto the conveyer system and the product will flow towards the cashier.

- The cashier will make the bill of the product and will control out gate for the customer to leave.

6. PAYMENT APP

This is the payment app that provides the user to get the payment done fast as barcode system is used in it.

This is the first page of the payment app. It includes the login process through username and password. After login is done the user has to add the products purchased in the next page. Once all the products added to the cart, the next step is that products are scanned the price of all the products scanned will come as the final list purchased by the customer. The final step is that the customer will receive a sms of the products purchased and the payment confirmation.

7. FUTURE SCOPE:

This type of project could be helpful in developing country like India. It can solve the   problem of the time consumed by the consumer for the shopping of grocery product and other essential commodities that is needed in our day to day life.

This project has wide scope in future. The billing of the products could be done automatic instead of manual so it can reduce or shorten shopping time of the consumer more. By providing LCD screen showing the list of the products at the entrance it can be more convenient for the customer to shop.

Instead of workers this plant can be made fully automatic so it can achieve more efficiency and less errors that can be caused such as the delaying of the work

8. CONCLUSIONS

We know that today the people are busy and they don't have the time for shopping of the grocery and daily products. Our project can help the customers to shop without getting off their car just by driving through our Supermarket they can obtain variety of products in a short period of time and with convenience and ease

This type of system is very helpful in urban areas. The customers can buy what they actually see which is not possible online shopping and even the time required for shopping is less compared to online purchasing.

Our supermarket can be useful for the customers who are busy in their work. This supermarket can be established near petrol on highways. So during journey if they require

any product or grocery it would be available for them in our market.

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9. ACKNOWLEDGEMENT

10. BIOGRAPHIES

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