**Chapter 3: Review of Literature**

**Introduction to IoT**

The introduction to IoT and the main components of IoT is given in this site. **[1]**

**Applications of IoT**

This site gives the information about the applications i.e. which sectors IoT is used and how it eases a customer’s daily life. **[3]**

**Solving real world problems with IoT**

This site defines what the real world problems are and how it is solved by using IoT. **[2]**

**Introduction to colour sorting**

Why colour sorting machines are more effective than manual sorting mechanisms and how it is useful in industries with bulk production and in industries having repetitive actions is explained. Its applications areas are stated as well. This helped to formulate the problem definition and construct the aims and objectives for this project.

[Extract from site]

As the name suggests, colour sorting is simply to sort the things according to their colour. It can be easily done by seeing it but when there are too many things to be sorted and it is a repetitive task then automatic colour sorting machines are very useful.  These machines have colour sensor to sense the colour of any objects and after detecting the colour servo motor grab the thing and put it into respective box. They can be used in different application areas where colour identification, colour distinction and colour sorting is important. Some of the application areas include Agriculture Industry (Grain Sorting on the basis of colour), Food Industry, Diamond and Mining Industry, Recycling etc. The applications are not limited to this and can be further applied to different industries. **[4]**

**Components required for the implementation of project**

The components required for this project, i.e. Arduino board, 2 Hobbyist Servo Motors, Colour Sensor-TCS3200, power supply as well as the components required for construction of the prototype were given in this article. Along with that, the 3D modelling using Solidworks 3D modelling software was used to show the implementation of the various components, how they work and interact with every other component. The construction of the project as well as a demonstration of how the project works is given in this website.

[Extract from the site]

The working principle is as follows:

* Initially, the coloured skittles which are held in the charger drop into the platform attached on the top servo motor.
* Then the servo motor rotates and brings the skittle to the colour sensor which detects its colour.
* After that the bottom servo motor rotates to the particular position and then the top servo motor rotates again till the skittle drop into the guide rail. **[5]**

**The YouTube video of colour sorting machine**

This is the YouTube video linked to the above website which gives us a demonstration of the project, the 3D modelling of the project, how the project is constructed and also how the code runs to give the desired output. **[6]**

**Aims and objectives of colour sorting machine**

This site gives the aims and objectives of a colour sorting machine as well as how the colour sorter is used to segregate items into separate bins. Also the use of colour sorting machine giving the example of its use in the field of candy industries is also explained. **[7]**

**Counting objects using IR Sensor**

How to count objects using IR Sensor, Code for IR Sensor with Arduino and how 7 Segment display is used in this project to display the count of objects is given in this site. **[8]**

**Code and connections for IR Sensor and theory on sensing of obstacles**

## The working of IR Sensor, its various components, its connections and how the code for counting objects using IR Sensor works is shown in this site. [9]

## Scope of colour sorting

## This site gives us ideas for the scope and applications of this project.

## [Extract from site]

## Applications of Arduino based Color Sorting Machine:

* The color Sorting Machine can be used for Industrial purposes, like sorting different industrial parts according to the colors.
* For sorting skittles, colored balls and M&Ms.
* Can be used in Automobile Industries. **[10]**

**Working of color sensor TCS3200**

How TCS3200 Color Sensor works, its various components, its pin diagram and its connections with Arduino board is shown on this site. **[11]**