

# Object Sorting Based on Color & Weight

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**Abstract**— In the automatic sorting system, precision weight, colour, length and height of the parcel boxes are all concerned. Different box length, height, colour and weight will certainly have a limited personnel who visually identify and pick the object. This project describe the new economical solution of a robot control system. This solution provide accuracy, reduction of time, reliability, energy conversion and more advantages. Main purpose of this paper is to design an automated material handling system. Movement of robotic arm is to depend on their object weight and colour. Weight will be measured on the conveyor belt with the help of load cell and colour of object will sensed through the (RGB) sensor. Microcontroller is heart of that circuit and control the all function, therefore allows dynamic and faster control, that controller.

**Key words:** Automatic Sorting System, Object Sorting

## I. INTRODUCTION

In the speed running world everyone are considering the time factor as an important issues. To reduce this time or managing this time, a small implementation which is useful to industries is our project. Today in industries, same model or same object is manufactured with little variation like colour, Weight etc. For placing the same type of object form one place to other place, sorting them on colour and weight bases we use load cell. So for this all industries will spend huge amount as wages and take lot of time for processing.

## II. BLOCK DIAGRAM

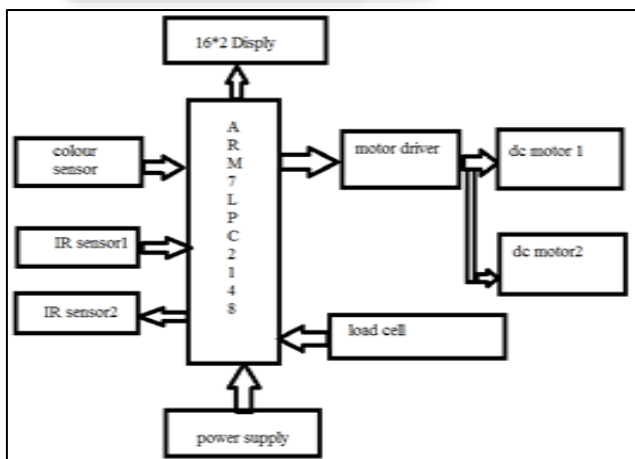


Fig. 1: Block Diagram

## III. LITERATURE SURVEY

### A. Market Survey

When we go there at PUNE katraj milk product industries for marketing survey & we had an observation of " katraj dudh dairy". We communicate with operator who worked in that industries & also communicate with labour who works in that pantry. After that conversation we had an observation milk

product sorting is very week because of this is sorted by manually. We observed that manually sorting of the milk product process has time consuming.

In this block diagram there are two devices one is transmitter and another is receiver device. Transmitter device is IR sensor transmitter. In receiver device it is IR sensor receiver. ARM for sorting, conveyor belt, load cell, DC motor, 16\*2 LCD display.

## IV. WORKING

In this project the object has the different size, colour, weight, length etc. has present. ARM7 is a main part of that system, ARM7 (LPC2148) is used that arm7 is a heart of that system. Object of box has a different colour, weight and length so, that type of object move on the conveyor belt. When object is move on conveyor belt that time first the object will be detect through the IR sensor. IR sensor send the detection signal to the lpc2148.

When the object detection will be take place then object move forward to load cell, That load cell will convert the physical quantity to electric quantity. In the form of electrical quantity the pulses will be generated, that generated pulses through calculated the weight and that of output weight display on display. At that indication of weight process in same time the colour of object will be display on display. Colour of the object will identify through the colour sensor of RGB sensor.

When weight of object overloaded then it will be send the signal to lpc2148 and that overloaded output will display the display. Object move on one end to other end of the conveyor belt that time sort the object through the robotic arm.

## V. RESULT

We have developed a automation system to sort the object. IR sensor detect the object, when object will detected at that time object move forward on conveyor belt. Colour sensor and weight sensor (load cell) will activated. Colour sensor has RGB sensor that will send signal to ARM7 and load cell measure the weight between 0 to 10 kg object.

Measured object weight is between 0 to 10 kg then , output display on LCD and weight is overloaded then it will indicated to LCD. Object will find then sort the object on basis of it's parameter measurement.





Fig. 1: Experimentation result

#### VI. CONCLUSION

Object sorting system designed with the help of ARM7TDMI-S microcontroller is simply yet highly essential circuit which can be used for various purposes such as measuring weight, obstacle colour, length measurement and much more. First the components were bought and tested on bread board and then the final circuit was implemented on Vero board for different environment condition, values of load cell sensors were obtained and colour of object obtained and result were displayed on LCD.

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