

AUTOMATION OF COLOR OBJECT SORTING CONVEYOR BELT

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ABSTRACT – Main objective of the project the color of an object is detected and placed based on its color for pick and place purposes, a robotic arm is used. Robotic arm is the most important area today's world Robotic arm controlled by ARDUINO It is built using UNO and servo motor. with the help of Color sensor, detects the color of the object, robotic Keeps the arm in an even position. The most Leveraging practical hands Growth, productivity and accuracy. come on in the project, the system classifies three cubes color Just use the light intensity to use A method of identifying specific colors. on the conveyor the belt object travels from the start position to the end position Conveyor belt help. Conveyor belts are used less Time to flow and extract Productivity.

Keywords— *Robotic Arm, Conveyer Belt, Color Sensor, Servo motor, DC Motor*

1. INTRODUCTION

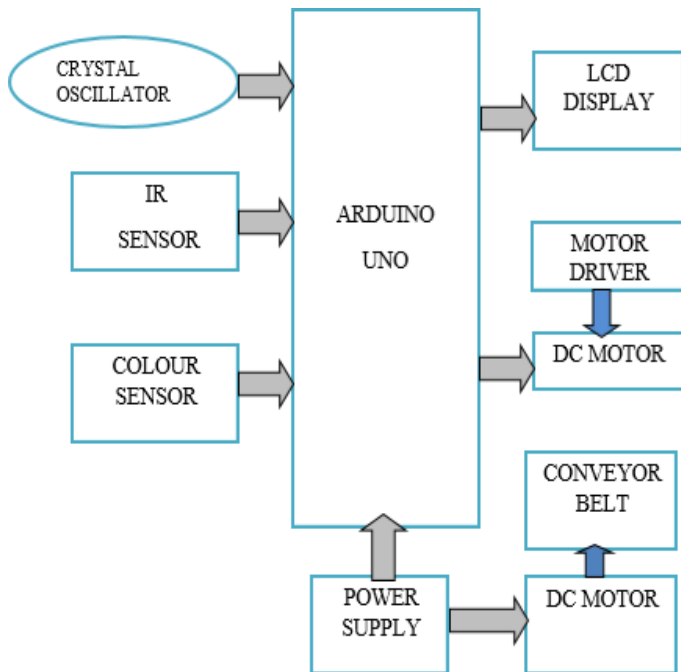
Project sort is used everywhere Many industries like food processing industry, toys Industry etc. Ensure product quality This process is facilitated by using sign automation. Automation refers to the use of prevention systems such as Computers or robots to replace humans in handling Various processes and machinery and provide Mechanical assistance. It doesn't just reduce the manual Try, but time is short. Gives more time for Marketing, but avoids the risk that may arise then Humans work in hazardous environments. produce there Sorting of objects is essential in manufacturing industries. The Objects can be of the same or different types. This mechanism Objects must be found and objects must be sorted on their properties. The object

has different color and shape. Our goal is Sort the objects using different colors. The object has different color and shape. Our goal is Sort the objects using different colors.

2. LITERATURE SURVEY

This includes critical analysis of the present Materials that depend on the orange classification system Includes IoT short research through literature Contributions But here, we have a summary of the analysis Conclusion at the end of the research and review paper Summarized data for scanned and analyzed research papers. In their paper color classification report robots explain this The color sensor model exists as a form of zero motor coordination No and LCD display TCS 3200 is a color sensor Detects light reflected by an object. Accordingly, A color detected servo motor used to move the slider. Input and output operation control by Arduino. Found out The color of the colored object and the calculated value are displayed on the LCD. Their paper says complete Architecture of Object Sorting Using Color Sensors and Arduino. The color sensor detects the color of the serial output RGB value to Arduino.

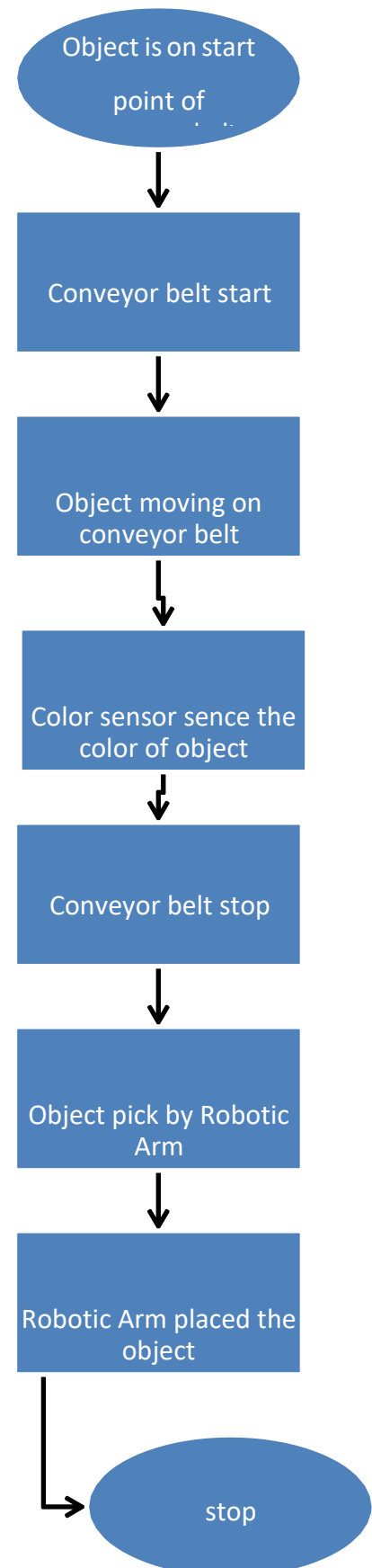
3. BLOCK DIAGRAM



3.1 WORKING

the purpose of this project is to understand arduino uno colors sensor interface and how we can do color detection application using arduino uno and tcs3200 colors sensor according to the block diagram, objects are sorted based on color. to find the color of an object, find the color a circuit with a color sensor is used. arduino uno will be used as a control device to perform various activities. by taking the right decision. when we are sorting objects, we will need mechanical a system that uses a servo motor and a conveyor belt for sorting things first with the help of color sensor the object will be sorted based on its color. in this project we sensor used is tcs3200 he recognizes color object and gives a specific code to the arduino uno. the arduino uno compares the code with the stored data and a specified output corresponding to an input. will be finally order the controller mechanical assembly place the object in a specific location.

4. FLOW CHART



5. METHODOLOGY

A pick and place robotic arm is a mechatronics system. Whoever found the object on the conveyor belt, select the object from the conveyor belt and to the respective locations. IR A sensor is used to detect the presence of an object as a Transmitter to receive interference by positioning things. The signal is received by the robotic arm. The controller draws its picture with the end effectors and places it on top. The corresponding position depends on the corresponding color. Read item, green, blue. After sensing the object and its colorful robotic arms place them according to the conveyor. If the string interrupts another object, it repeats its same job.



Fig.5. Robotic Arm

6. HARDWARE DESCRIPTION

This section describes about the hardware component used in this project.

6.1 CONVEYOR BELT

In this project conveyor belts are used to transfer the goods from one end to the other in a classification system. One of the wheels is driven by a DC motor. Next material on the belt while moving the belt.

6.2 COLOR SENSOR

A color sensor is a complete color detector. We can use TCS3200 color sensor chip. It can detect and measure an almost infinite range of visible colors of a particular color. Connect the degree color sensor through Arduino Male / Female Wires. The same server is taking 3 different ones. Readings showing 3 primary colors. Accept RGB LED Value bits 0 and 255. Here is an example to read red color. Repeat the above steps changing the position of the green color. Blue you will get color output through RGB led.

6.3 LCD

An LCD screen is mounted on the robot for display. The color of the object moving on the conveyor. Also display the belt and the number of sorted objects.

7. RESULT

The final result was satisfactory. The color detecting sensor worked well and it was able to detect red, blue and green object nicely and change the direction of servo on right and left side to sort the object in proper place. The belt moved from starting point to the end point through the roller without motor to device. The system performed well as programmed and detects the object according to their color.

7.1 RESULT TABLE

Sr. No.	Object type	Color Of Object	Degree Of Angle
1.	Rectangle Box	Red	30 drg
2.	Rectangle Box	Green	60 drg

3.	Rectangle Box	Blue	90 drg
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- Humans cannot detect all colors quickly and in case Human accuracy is low, so we You can use this system to classify items.
- Pharmaceutical



8. CONCLUSIONS

Nowadays there is more competition in the industrial sector Production, sudden first stage management The last stage of production is very important and Sorting and sorting objects is a learning process. So this object classification object is an excellent reason Its function and simplicity please stop using the idea The industry of this project can be solved easily Required product by color.

9. APPLICATIONS

1. Agriculture Field

We can make an important application in this field Used for classification of various agricultural products Almonds, grapes and more.

2. Industry

It can be used for classification of various objects with high quality and accuracy automation.

10. FUTURE SCOPE

- Using hardware and software we know all the colors Sorted by color sensor and more objects.
- We can use robotics to pick up and place objects .
- We can use this system as a quality controller Adding another sensor.
- We can use the counter to count the number of things.

REFERENCES

K.Sasidhar, Shahwar Farooqi, Mohammed Abdul Moin, M Sachin, “ DESIGN AND DEVELOPMENT OF A COLOUR SORTING MACHINE USING PLC AND SCADA” Issue Vol VII, July 2018.

Umesh A. Chatte1, Utkarsh Kadam2, Vikram Khupase3, Sanket Mane4, Pooja Kharat5, “ARDUINO BASED OBJECT SORTING” . March 2018.

Navid Khan, Khwajaavais Lakdawala, Shehzaad Palitana, Ramzan Khan, “ OBJECT SORTING SYSTEM BASED ON COLOUR SENSING USING MATLAB”. Vol. 4, Issue 11, 2017

Hrutwik Dabhade, Rushant Thakare, Jayesh Kolhe, Gajanan Patil, “ PICKING OBJECT BY USING ROBOTIC ARM”. Vol. 09, Issue 05, May 2022.

Dharmannagari Vinay Kumar Reddy, “
SORTING OF OBJECT BASED ON COLOUR
BY PICK AND PLACE ROBOTIC ARM AND
WITH CONVEYOR BELT ARRANGEMENT”.
Vol. 3, January 2014.

Mr. Pratik Bapuso Patil¹, Mr.
S.S.Patil², Mr.M.L.Harugade³, “ REVIEW ON
COLORED OBJECT SORTING SYSTEM
USING ARDUINO UNO”. Vol. 06, Issue 05, May
2019.

Shashikala.J, “ AUTOMATION
OF OBJECT SORTING BASED ON
COLOUR”. Vol. 22, Issue 10, October 202