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RGB Colour Sensor Based Object Detection Using SCADA

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Abstract:
This paper describes the new technology used for sorting the objects by detecting their colors using RGB color sensor detection. As in today's market needs of goods are increasing day by day, people are getting more advance and shopping is a status symbol now. So the availability of these goods totally depends upon the volume of production which earlier was done by bare hands of human being. But in this modern era human efforts and man power is reduced by automation. This project is developed on same theme to improve efficiency and volume of goods production. Here a single machine can do work of many peoples in short time. So this project helps in sorting various items produced in industry on the basis of color of product as we will be using color sensors. And there is also need of man power to keep the records of the day to day process of the industry. So in order to reduce the man power and to increase production rate we have used SCADA in our project.

Keywords —RGB,LED, PLC,SCADA, LMPS,DC,USB.

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I. INTRODUCTION

Automation is use for handling different technologies and machines to decrease man power and labour cost. Automated systems generally use complex techniques which increases the cost of the design and time consumed. Sorting based on colour is done in many companies. Automated sorting also decreases the labour cost and the manufacturing time. RGB colour sensors use RGB filters to detect and perform colour measurements of items placed in front of the sensor. Colour sensor contains a white light emitter to light up/reveal/clarify the surface. Based on the activation of the three filters, the colour of the object is detected. Many colour sensors are capable of sensing more than one colour for multiple colour sorting applications. E.g. proximity sensors. RGB colour sensor is used in many industrial applications like food industry, agricultural products scaling and grading, mineral sorting, Pharmaceutical, Handling biomedical waste bags, Airport and Soap manufacturing plant, etc. In industries, various objects are being processed to reduce the time consumption for processing similar types of objects. To reduce the cost of processing via conveyor belts only single conveyor belt is used and the three colours are sent via single conveyor belt, but the problem is that the objects are not sorted as per the requirements as humans are involved. To solve these problems **"RGB colour sensor based object detection using SCADA"** is used.
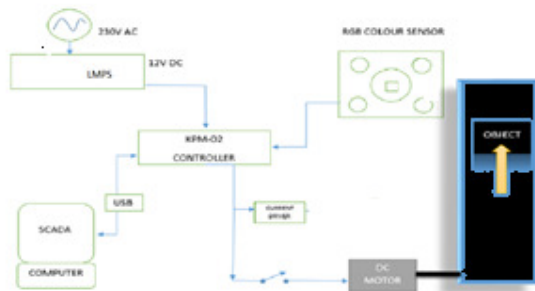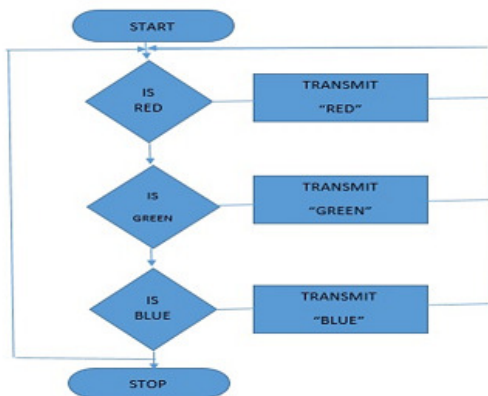
II. BLOCK DIAGRAM

Fig. 1 Block Diagram

III.   FLOWCHART

IV.   WORKING

Here we are using the LMPS (Linear Mode Power Supply) to convert the AC voltage into DC voltage. The input to the LMPS is AC mains 230V. When the input is applied to the LMPS; it step downs the high voltage AC mains to low voltage AC. Then it rectifies, smoothens and regulates the signal to get the 12V fixed DC voltage at the output. The output of LMPS is then applied to the PLC (Programmable Logic Controller). PLC can have both digital as well as analog inputs. The conveyor belt is shown in figure in black colour. Here we used the DC motor to rotate the conveyor belt. The current driver and relay drives the DC motor. The object is placed on the conveyor belt and the conveyor belt is rotated by DC motor. When the object comes in front of RGB colour sensor; the sensor responds to the colour by generating a

voltage proportional to the detected colour. Then the output of the RGB colour sensor is applied to the PLC to process further. After the PLC processes the data; the data is transferred through the USB (Universal Serial Bus) to the computer. The output is then displayed on the computer with the help of SCADA (Supervisory Control and Data Acquisition). The SCADA is used to supervise, observe and control the process and store the information in the form of database in computer.

V. CONCLUSION

This project will help in object detection and sorting process more efficiently with short time.Also less man power will be required. We have developed a system which would increase the production rate and decreases time required.We can modify the system according to the requirement. We have also been able to create a database in the computer with the help of SCADA.

ACKNOWLEDGEMENT

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