

JAGGERY QUALITY TESTING AND SORTING SYSTEM

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Abstract - India is an agricultural country within the automatic sorting system. More than 70% of the population of India lives in villages. Agriculture is the main source of income. The use of technology in agriculture in India is not up to the mark today. Kolhapur is the leader in Maharashtra jaggery production. Manual is the traditional method for manufacturing jaggery. This paper focuses on automating the production of quality jiggery. It results in low profit, man power wastage.

This project describes a robot control system's new economic solution. This solution delivers accuracy, time reduction, reliability, conversion of energy and more benefits. This paper's main purpose is to design an automated handling system for materials. Robotic arm movement depends on the weight and color of the object. Weight is measured on the conveyor belt using the load cell and object color is sensed through the sensor (RGB). Microcontroller is the core of the circuit and controls the entire function, thus allowing for dynamic and faster control of the controller.

Key Words: Motor, colour sensor, Jaggery Sorting

1.INTRODUCTION -

In the world of speed running, the time factor is considered by everyone as an important issue. Our project is a small implementation that is useful to industries to reduce this time or manage this time. The same model or same object is produced today in industries with little variation like color, weight etc. We use load cell to place the same type of object from one place to another, sorting them on bases of color and weight. All industries will therefore spend enormous amounts as wages and take a great deal of time to process.

2. System Description-

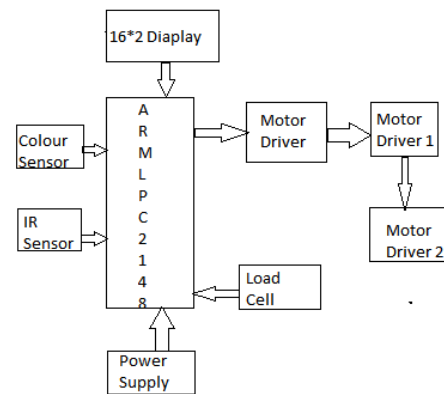


Fig. Block Diagram

The jaggery has the different size, color, weight, etc. present in this project. ARM7 is a major part of that system, using ARM7 (LPC2148) as the heart of that system is Arm7. Jaggery has a different color, weight and so on the conveyor belt that type of jaggery moves. When jaggery is moving on the conveyor belt, the jaggery will first be detected by the IR sensor. The detection signal is sent by the IR sensor to the lpc2148. The load cell will convert the physical quantity into electric quantity when the jaggery detection takes place. The pulses will be generated in the form of electrical quantity, generating pulses by calculating the weight and displaying the output weight display. At that weight process indication, the jaggery color will be displayed at the same time. The jaggery color will be identified by the RGB sensor color sensor. When the jaggery weight is overloaded, the signal will be sent to lpc2148 and the display will be displayed by the overloaded output. Jaggery moves through the robotic arm on one end of the conveyor belt that time sorting the object.

2.2 Flow chart-

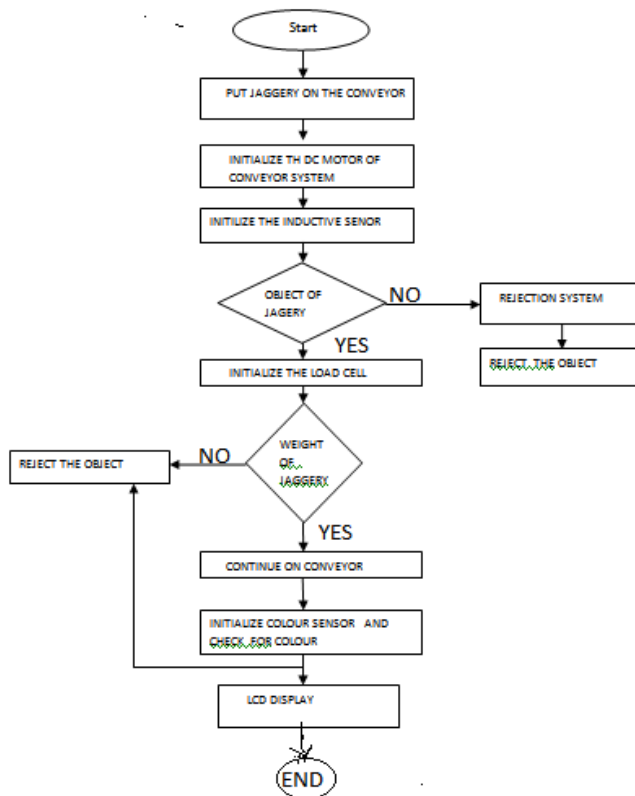
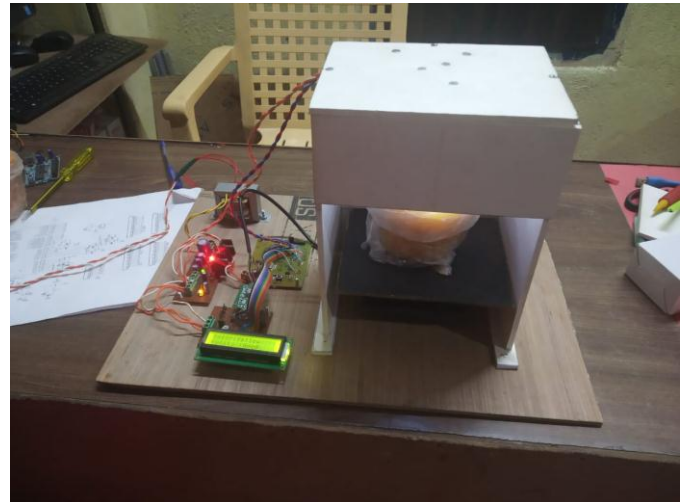
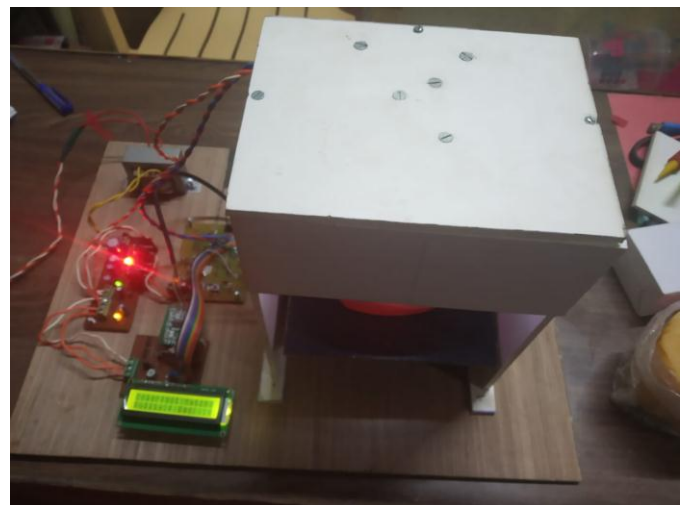


Fig. Sequence of Operation

Stage1: When Jaggery is of Good quality:



Stage 2: When Jaggery is of Bad Quality:

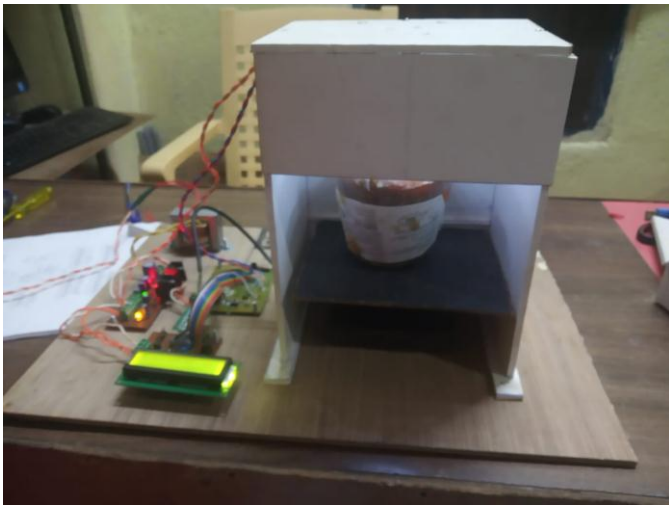


3 Result -

We have developed an automation system to sort the object. IR sensor to detect the jaggery when the object on the conveyor belt is detected at that time. It activates the color sensor and the weight sensor (load cell). The color sensor has a RGB sensor that sends a signal to ARM7 and measures the weight of the load cell between the object of 0 to 100 kg. The measured object weight is then between 0 and 100 kg, the output display is overloaded on the LCD and the weight is then indicated on the LCD. The object will then sort the jaggery based on the measurement of the parameter

3.1 System Model:



Final stage:**3.2 ADVANTAGES-**

- Less time
- Less man power required
- Fast Production
- Design flexibility

3.3 APPLICATIONS-

- Food industry
- Agricultural products scaling and grading
- Mineral Sorting
- Pharmaceutical
- Handling biomedical waste bags
- Airport

4. CONCLUSION-

Jaggery sorting system designed with the help of the ARM7TDMI-S microcontroller is simply yet highly essential circuit that can be used for various purposes such as weight measurement, color of obstacles, etc. First the components were purchased and tested on bread board and then the final circuit was implemented on Vero board for different environmental conditions, load cell sensor values were obtained and object color was obtained and the result was displayed on LCD.

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