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SMART CONVEYOR

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Abstract - The Smart Conveyor is a project of a conveyor application with the adaptation of sensor to make it operate smartly and met the concept of Smart Campus. The Smart Conveyor is going to be mounted at the cafeterias in the campus and college. The function of the smart conveyor is to maximize the efficiency of works in order to ensure the dirty dishes and utensils are managed systematically. Besides that, it is also to keep the cleanliness at the cafeteria so that the students and staff can have their meal comfortably. The main components of the smart conveyor are Arduino UNO, Ultrasonic Sensor, DC motor and L293D IC. Arduino UNO is the core of this project and it is very important to make sure the project can run as expected. If the program gone wrong, it may affect the operation of the motor. The Ultrasonic Sensor is used to detect the plate on the conveyor. When the Ultrasonic Sensor has detected the plate on the conveyor, it will send the signal to the Arduino UNO and the input signal will be send to L293D IC. L293D IC functions as a switch to the circuit to turn on and off the motor. The conveyor will carry the dirty plate from the front of the café straight to the kitchen after someone put the plate on the conveyor. In conclusion, this project will definitely reduce the human's energy and also will make the work more efficient yet easy from before.

Keywords - Smart Conveyor, Ultrasonic Sensor, Arduino UNO, L293D IC

INTRODUCTION

The smart conveyor is created in order to reduce the human energy and also to make the work more efficient than before. Usually, the workers need to carry the basin full of dirty plates and utensils to the kitchen. Other than that, the problem that the workers need to face is when the plate fall on the floor and they have to collect it one by one. This will make the work more difficult and consume a lot of time. The function of smart conveyor is to move the dirty plate from the front part of café straight to the kitchen and ready to be washed. So, when using smart conveyor, the workers just need to wait the plate in the kitchen. With this product, the worker's energy can be reduce and the work will be more efficient.

METHODOLOGY

When the Ultrasonic Sensor detects the object on the conveyor, then it will send the signal to the Arduino UNO. After that, the L293 IC will off after receiving the information from Arduino UNO and the motor will rotating for a few second before it is stop. The first step to begin this project is start with installation of the hardware according to the schematic diagram. The calibrations and tunings are done by the coding programmed when it was uploaded in the Arduino UNO.

RESULT AND DISCUSSION

The smart conveyor consist Ultrasonic Sensor, Arduino UNO, DC motor, L293 IC and battery to complete the circuit. In order to make the motor move, the sensor need to be trigger first. When the sensor detect a plate, it will sent a signal to the Arduino UNO. When the signal is high, the motor will run for some times and stop meanwhile when the signal is low, the motor will not run but in order to make the simulation happen the Arduino UNO need to have the coding first inside it. However there are some problem that faced which is the conveyor take more times than it should to start and stop.

CONCLUSIONS

Ultrasonic Sensor is used in this project that is function to detect the plate and to activate the conveyor. The smart conveyor will move for a few second, as the time that already set, before it stopped and this process will repeat when the sensor detect the other plate. With the connection between the component and the correct program, this project will run as expected and also move with the right period that has been set in the program. This project able to reduce the human's energy and to make the works more efficient and fast. The café's owner also can reduce the number of the workers that need to hire. This project could achieve its objective which can move the plate from one place to another place without using human energy after implemented as a prototype in final year project 2.

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