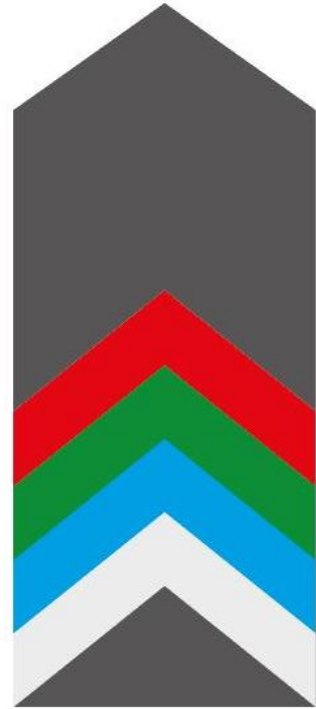

SmartBelt



By : Mohammad Halaweh & Haytham Saleh

Outline

Idea

Introduction

Components

Process

Future work



IDEA

Where is the Idea come from?

After the Corona-virus quarantine, we noticed that factories has shutdown because their employees are quarantined, and this proves the importance of machines to do the work that a human can make and for the employees to control the machines from home instead of doing what the machine can easily do:

INTRODUCTION

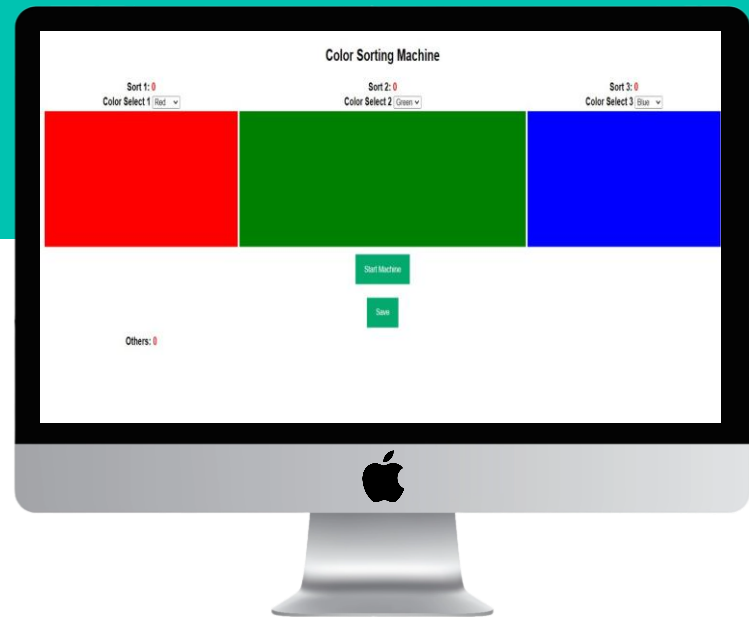
We built a color-sorting machine that would sort different types of products in the specific containers that the employee would provide from the web page, and the machine will behave upon it.

Efficiency :

- ❖ Instead of needing time to specify which products goes to which container at a specific time, the machine will recognize it immediately depending on what the employee provides it.
- ❖ Instead of the need to provide more human-hands the machine will do the same job faster and easier.

Precision:

- ❖ The machine does the sorting very fast and very accurate it knows before the product reach its container that it will go there.
- ❖ On the web page it will provide specific information on how many products it has filled in each container immediately upon its actions “immediate feedback”.



Conveyor Belt



DC Motor



Dual H-Bridge Motor Drive



Coupler



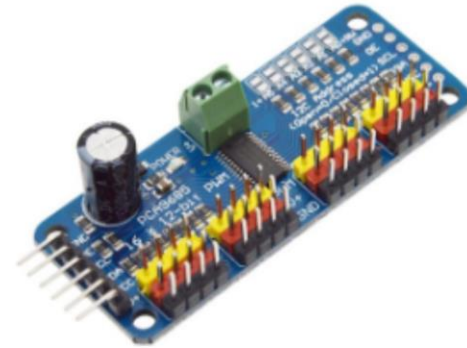
Roller



Servo Motor



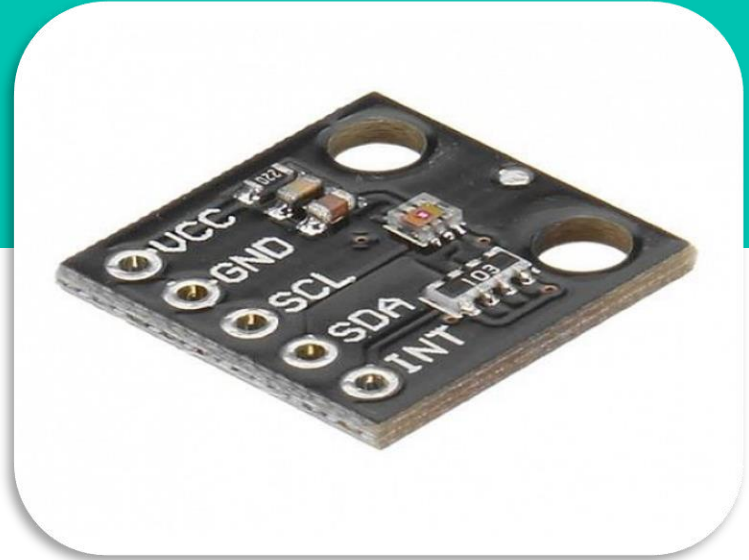
Servo Driver



IR Infrared Sensor



RGB Color Sensor



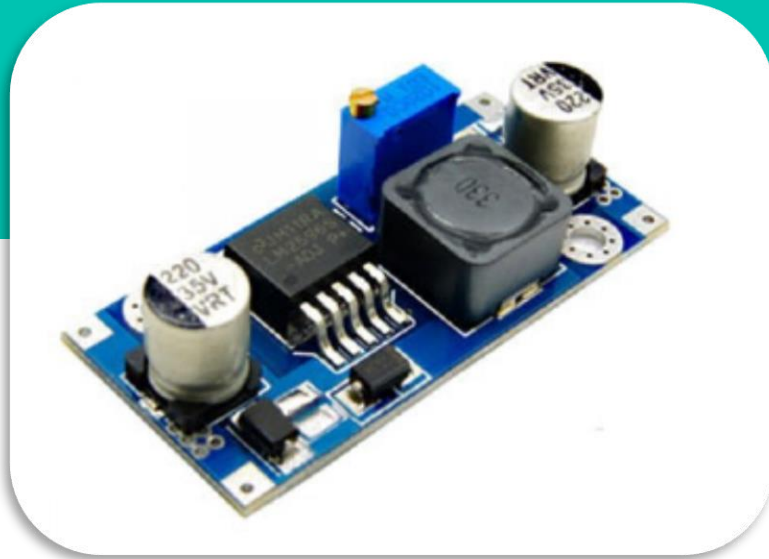
I2C LCD 2004



12V 5A Power Supply



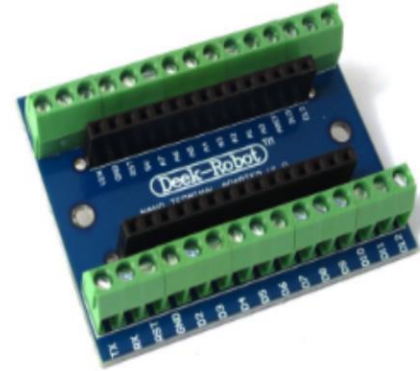
Buck Converter Module



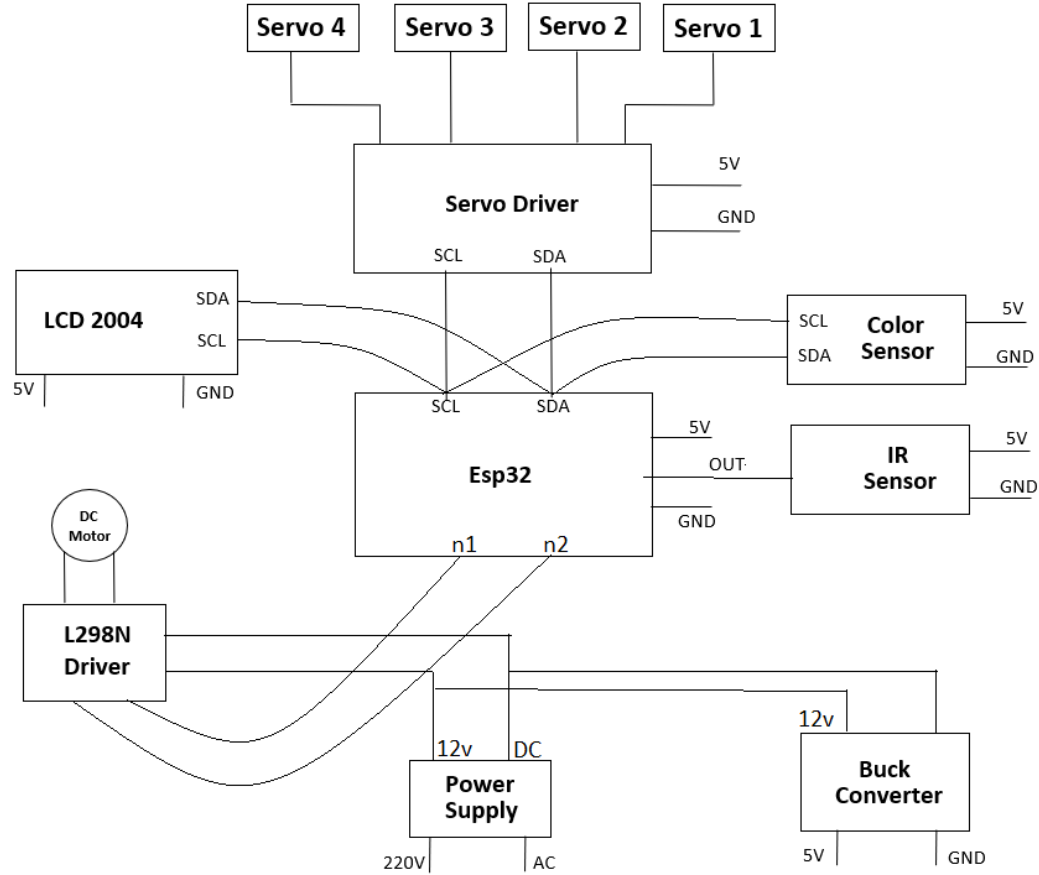
ESP32



Terminal Adapter Shield



THE CCT :



PROCESS

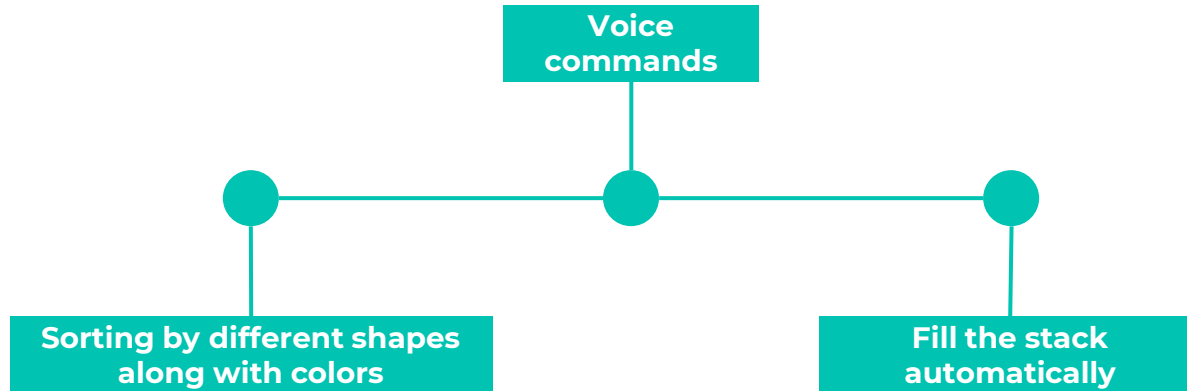
In this section we will discuss the implementation of the machine.

- ❖ Stack is filled with different color of products.
 - ❖ Connect the ESP32 with Wi-fi it will provide us with its IP and we can use it to open the web page.
 - ❖ Select from the web page the colors for each container from a check box and then we start the machine.
 - ❖ Beston will push the first product from the stack to the belt, the IR infrared sensor will detect if there is a product or not and the RGB sensor will determine its color to make it fall in that specific container.
 - ❖ Depending on the information that the RGB sensor gathered, the ESP32 will have the data of the containers on which products should it accept, comparing these information it will be decided which servo motor will move.
 - ❖ If the product is to fall in a specific container the servo motor next to it will move its arm to block the path of the product to make it fall in the container after that happens it will move back to its place.
 - ❖ If no products belong to any container it will reach the end of the belt to fall in an unspecified container for products.
 - ❖ The number of products in each container is updated in each action on the web page.
-

TECHNOLOGIES



Future Work



Special Thanks!

Dr.Sulaiman Abu Kharmah

And Everyone Who Helped Us Complete
This Project Even If With a Single Word

