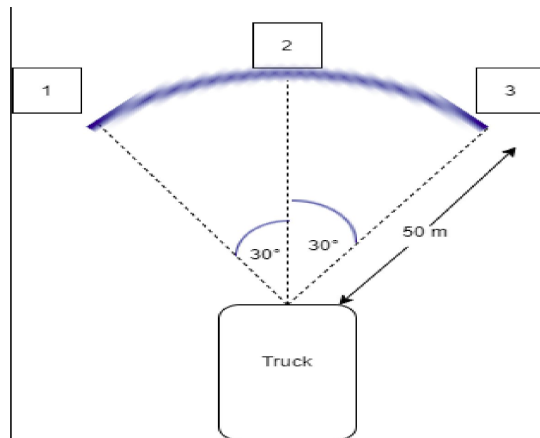


# **TEAM - SARKARI**

## ***Abstract -***

Our task was to unload all the parcels one by one from the truck and separate it by pincode and keep it in a different cart according to pincode. With a few constraints we have finalized the design of an automated bot which helps ease the process.

## ***Problem Statement -***



The bot will take the couriers from the truck and deliver it to their respective pincode address.

A constraint on the designed bot - 4 faces will be considered for scanning the barcode to get the corresponding pincode.

## ***Ideas and Our Solution-***

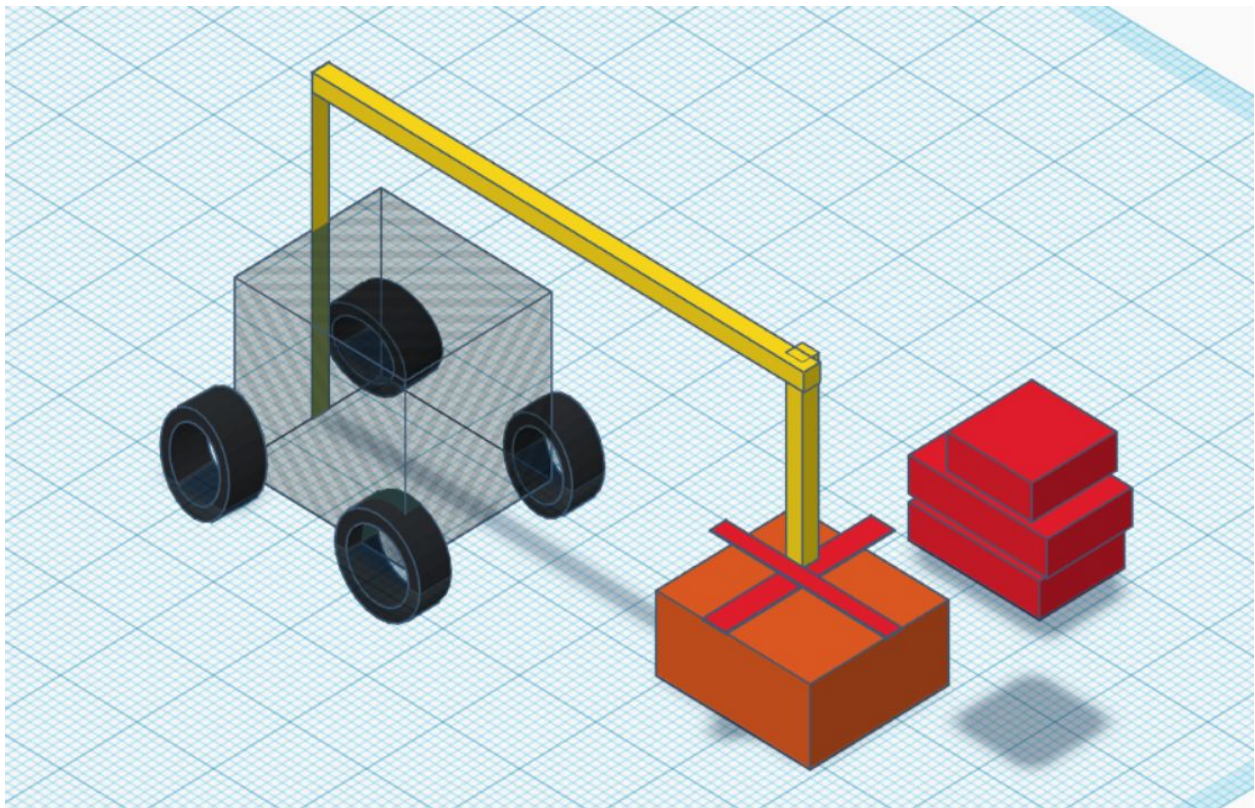
### **Working mechanism step by step**

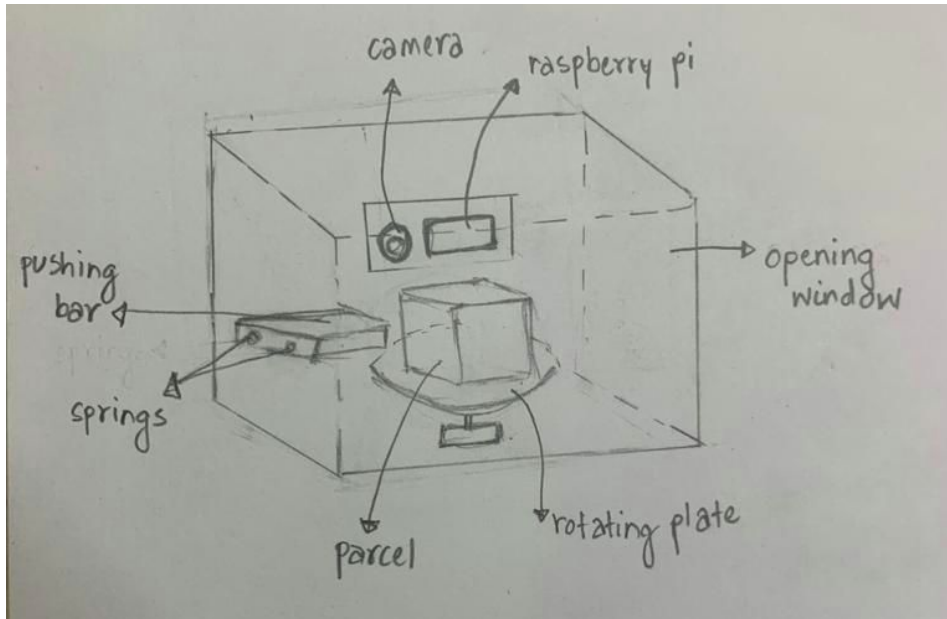
1. The bot picks up a parcel from the truck using mechanical design and then puts it inside the bot at the center above a rotating surface.
2. The Rotator rotates the package and then we will process the video frames from the camera using Raspberry Pi. After grabbing the frame from

a threaded video stream, we decode the barcode and check the assigned pin code that matches with three given pincodes. If Pincode matches with given pincodes then it gives signal through Raspberry Pi to Arduino. Then finds the barcode in the frame.

3. If no barcode is found on the surface then the rotator on bottom rotates it. Servo is used here again for the rotation purpose of parcels.
4. After getting the location to be delivered the bot turns accordingly and moves straight for 50m.
5. On reaching the final delivery point, the linear actuator connected to a bar will gently push the parcel out of the bot.
6. The bot moves backward 50m to the initial point.

#### ***Mechanism in Details In Sequence-***





### 1. *Picking the object from the truck*

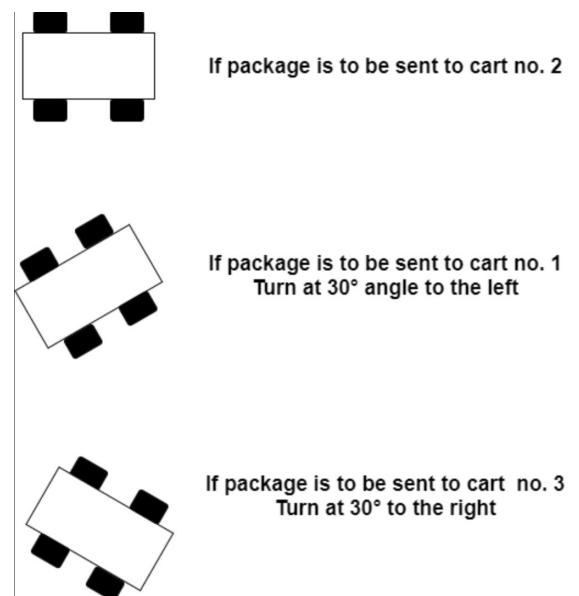
Kindly go through the below diagram, It will illustrate how the Robot will pick the object ?

- First it will align itself in front of the package.
- It will take its arms above the package and grab it,
- It will put the package inside its body in the rotator.
- Rotator rotates the package, and then BarCode is scanned simultaneously.

### 2. *Starting Initial movement-*

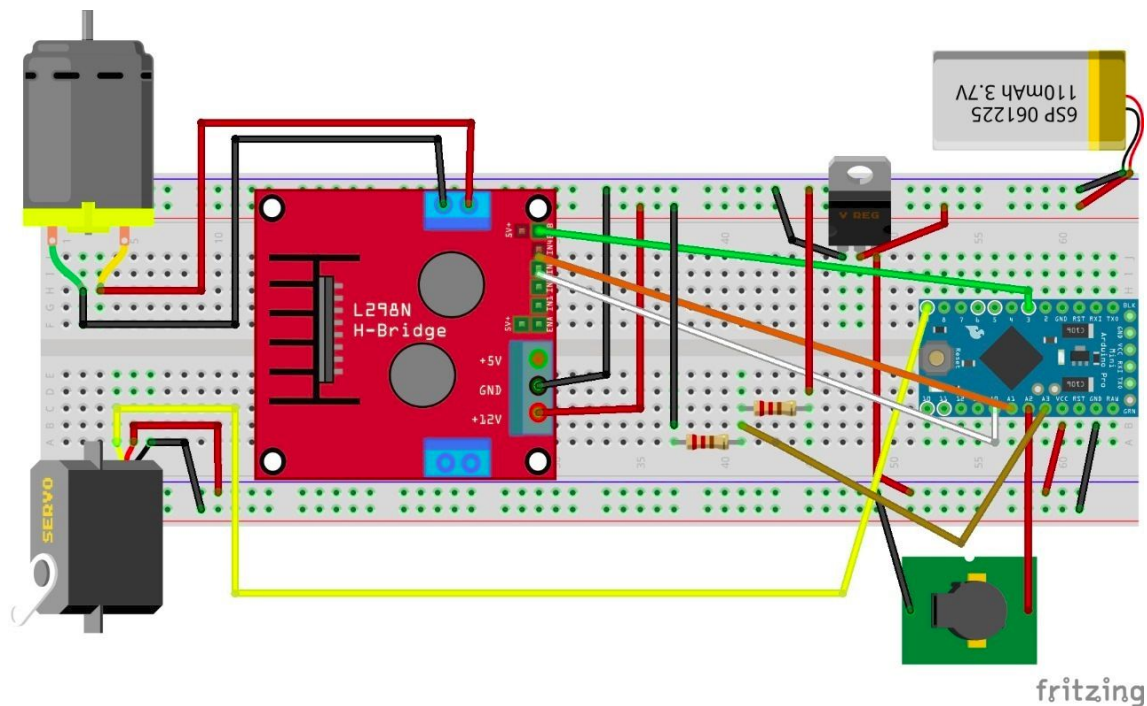
3 cases are there according to the problem statement as shown in the figure, the bot turns accordingly.

The parcel will be placed at unloading point(Truck) by the user on our bot. It will be kept on a quad-rotating platform to scan the barcode on any one of 4-sides of the parcel. The bot rotates the parcel 4 times and when a barcode is found it gets scanned using a Rpi.



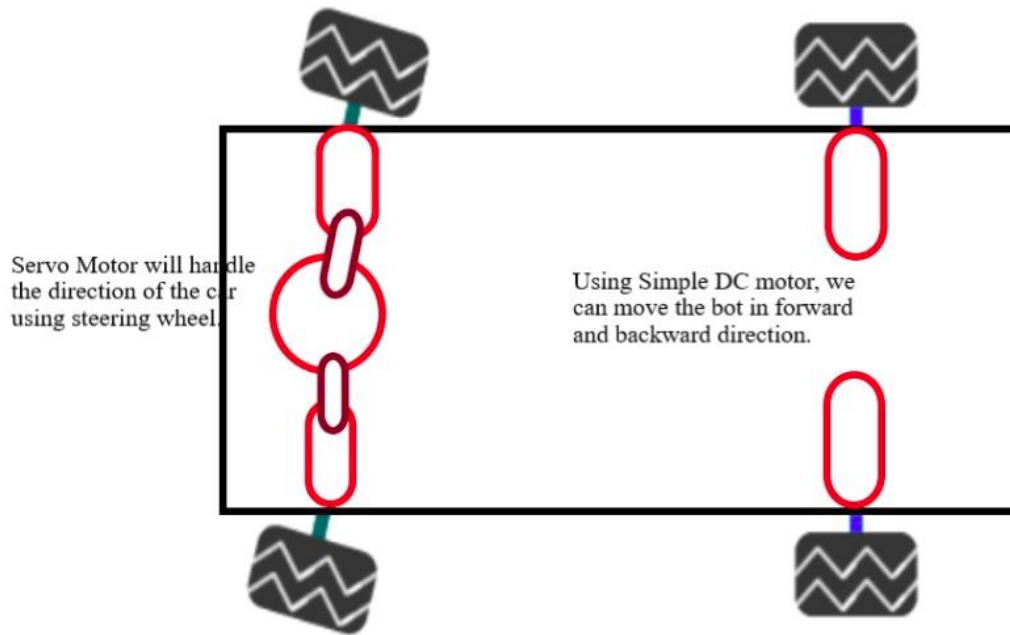
Servo motor is being used to set the angle of rotation of the bot. Then the bot moves on a straight path for 50m and comes back for next parcel delivery.

### ***Circuit Design -***



*Circuit connecting various modules used in the bot.*

## BASIC STRUCTURE OF OUR MOVEBLE BOT



## Mechanism Explained -

