

**Progresses for Holiday:**

- 1) I searched about creating the body:
  - a) Using 3D printer:

We revealed our expected design in Conceptual Design report as shown in Fig. 1. We can easily print the body of this design using 3D printer. Note that placing the wheels without error margin is very important for smooth operation. Therefore, creating the body using this technique offers us a body without error.



Figure 1. Technical drawing of our design

Some prices from different companies are shown in Table 1.

Table 1. Price comparison of 3D printing

| Price                            | Company            |
|----------------------------------|--------------------|
| 15 TL / gram of material used    | METU EEE           |
| 100 TL / 10x10x10cm cube         | 3dbaskihizmeti.com |
| 25 TL / 1-30 cm <sup>3</sup>     | s43d.com           |
| 35 TL / 31-100 cm <sup>3</sup>   |                    |
| 60 TL / 101-250 cm <sup>3</sup>  |                    |
| 110TL / 251-500 cm <sup>3</sup>  |                    |
| 155TL / 501-1000 cm <sup>3</sup> |                    |

b)Using Stainless Chassis



Figure 2. Stainless Chassis

This option is the safest but the most expensive one: Purchasing a pre-assembled robot car kit. It includes the following:

Table 2. Cost of Stainless Chassis

| Part                                  | Number |
|---------------------------------------|--------|
| Omni wheels (58mm)                    | 3      |
| Stainless Chassis                     | 1      |
| Motor With Hall Sensor (9V 150RPM)    | 3      |
| <i>Price 80-85\$ (aliexpress.com)</i> |        |

c) Using Plexiglas

It is the cheapest option. In this option, we need to modify (i.e. cut) the Plexiglas correctly to adjust the wheel angles correctly. This option is error-prone but cost-effective.

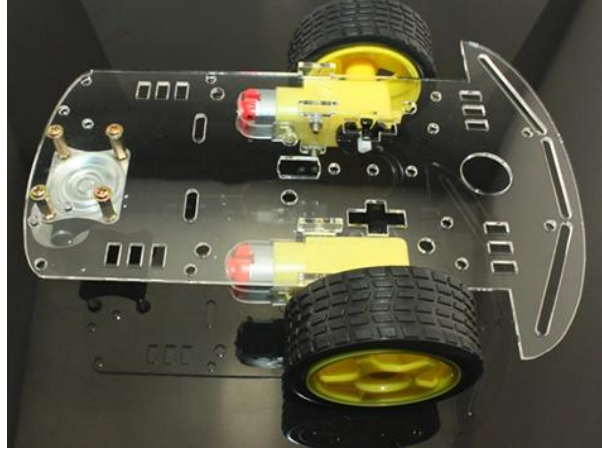


Figure 3. Plexiglas

2) I searched about Antennas:

According to my search, linear antennas are used in long open distances, whereas circular antennas are used in closed areas ([oscarliang.com/linear-circular-polarized-antenna-fpv/](http://oscarliang.com/linear-circular-polarized-antenna-fpv/)). Therefore, we need to buy and test a circular antennas given in Fig.4 .

Price: \$3.53- Fatshark ImmersionRC SpiroNet 5.8GHz Circular Polarized RHCP FPV Antenna ([aliexpress.com](http://aliexpress.com))



Figure 4. Fatshark Immersion circular antenna (5.8 GHz)

**Progresses for Holiday(Group):**

We shared the workload and divided the work into pieces. As a group, we searched and discussed:

- How to construct the body
- How to increase our range (Modifying antennas / power amplifier)
- How to create shooting system
- Movement System (i.e. Omni wheel or classical wheel)