Day 1 :

* First meeting and putting the outlines of the project

1. **Agenda**
2. Estimating the total weight of the available solution .
3. selecting servo motors according to stall current
4. In programming field.
5. **Explaining agenda points:**
6. Estimating the total weight of the robot , and based on it calculated the required torque according to the formula :  
   **T = f\*r = 0.5 mg \*sin(x) + 0.5 mg\*cos(x)\*j**

Where (T) is required torque , f is total forces , r is the radius of the wheels used in the robot , m is the mass of the robot , g is the gravitational force constant , and x is the incline angle of the ramp and j is the frictional constant .

After applying this formula , it turned out that using a servo of 9 kg.cm torque will be the most suitable available solution .

1. According the stall current of the selected servo motors , it was decided that a power bank of capacity 12 Ah would be used with a port of 1A and another one of 2.1A which would supply the servos with power .
2. In programming field , it was agreed on using light tracking algorithm as follows :

If the 2 sensors reads white : the robot moves forwards

If the left sensor reads white and right sensor reads black : the robot moves towards right .

If the left sensor reads black and right sensor reads white : the robot moves towards left .

**Day 2:**

1. **Agenda:**
2. Designing the base on solidworks application.
3. Choosing proper sensors according to the given mission.
4. **Explaining agenda points:**
5. Designing the base with respect to proper dimensions ,

And trying to get the best design with the smallest space that can be designed at .

By the words wich were written today and the previous day the base dimensions were determined as 10cm \* 15cm.

1. As for the electrical part by looking through the rules and deciding sensors which will be needed ,the sensors will be like so:

* Ultrasonic sensor
* Accelerometer
* Two colour sensors
* Eight TCRT sensors

Day 3

**Agenda:**

* Designing servo mount.
* Trying to make the TCRT board as shown schematic on the internet.

**Explaining agenda points:**

* Designing servo mount:

Trying to connect the servo motor to the base as said before that the base dimensions are 10cm\*15cm.Designing servo mount according to servo dimensions and available space on the base .

So, the servo mount was designed properly on solidworks.

* Trying to make the TCRT board as shown schematic :

Making TCRT board as shown schematic on the internet .But, finding the TCRT schematic not functioning as expected .

So, trying by trial and error until achieved a 33k ohm resistor on the receiver and 100 ohm on the emitter .

Day 4

**Agenda:**

* Finding the proper place forcaster wheels and servos.
* Making colour sensor with photodiode.

**Explaining agenda points:**

* Finding the proper place for caster wheels and servos:

Finding the best place for the servos and caster wheels with respect to available space .So, estimating the total weight of the robot and calculating the best position to climb the ramp ,

The servo motor will be kept at the end of the robot while the caster wheels position is in the front of the robot.

* Making colour sensor with photodiode:

Trying to make the sensor with photodiode at the beginning but it didn’t function as expected because the difference between black and white wasn’t enough.

Day 5

**Agenda:**

* Making changes on the base design.
* Buying the “GY-31” colour sensor.

**Explaining agenda points:**

* Making changes on the base design:

Deciding to make the base as the power bank considering that it will save space and better .So ,by trying to make the base on solidworks application. We deduced that it was better and more efficient than the old base.

* Buying the “GY-31” colour sensor:

Deciding to purchase the “GY-31” colour sensor to identify the green colour on the playground . But, a problem appeared that the colour sensor makes friction with the ramp when climbing it. So, trying to make it again but this time with LDR ,It worked efficiently and tried to make the differentiation between colours code. it worked well.

Day 6

**Agenda:**

* Attaching the servos and the caster wheel to the power bank.