2026 Sep - Dec

SOLAR CAR ENGINEERING

BY YURI

Engineering

About me:

I’m Yuri, a student passionate about mechanical, electrical, and computer engineering. I love understanding how these fields work together—from how solar panels power a motor, to how circuits connect, to how a car is assembled. I am also deeply passionate about protecting the environment and using technology to create clean, sustainable solutions. I have a strong growth mindset: when I make mistakes, I don't get discouraged. Instead, I use them as learning opportunities to improve my next step. I am persistent and don't give up on difficult problems until I figure them out.

Driving Question:

How can we design and build an energy-efficient solar car to reduce environmental impact?

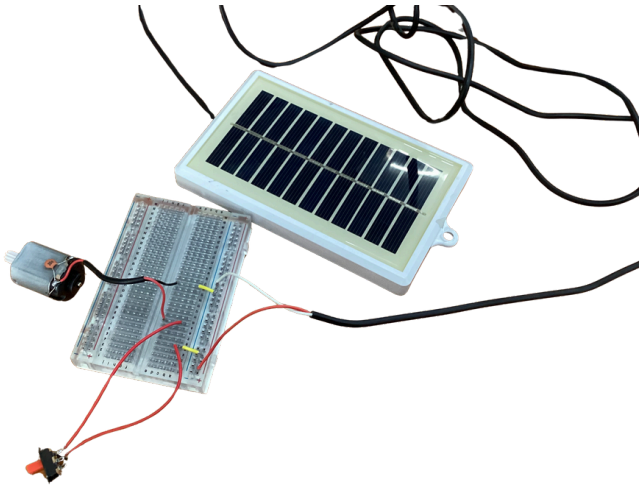
Project Plan:

1. Build a mini solar car to understand the mechanics and the electrical system around it
2. Build an actual drivable solar car using the knowledge I gained

Materials for the mini car

1. Materials for the Mini Car:
2. 3D printed base parts
3. Electric motor
4. Batteries
5. Tires x 4
6. Electrical wires

Solar Panel Testing



My hypothesis: To run a DC motor using only a solar panel, we need direct sunlight and a clear sky.

My observation: I tested the solar panel using a breadboard. At first, the motor didn't move because the solar panel wasn't getting enough sunlight. After I moved it to a better spot, the motor started running, which proved that the solar panel works.

DATA TABLE 1

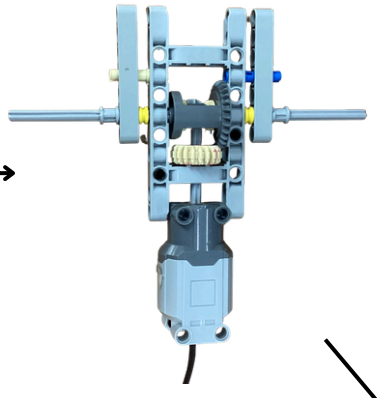
Weather condition	Duration	Observation
Partly Sunny	0 s	the solar panel using a breadboard. At first, the motor didn't move because the solar panel wasn't getting enough sunlight
Full sunlight	10s	moved it to a better spot, the motor started running, which proved that the solar panel works.

CONCLUSION: I WAS ABLE TO PROVE MY HYPOTHESIS .....

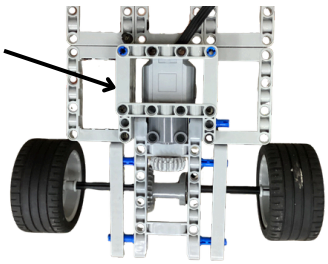
Driving System Testing

1. Assemble gears

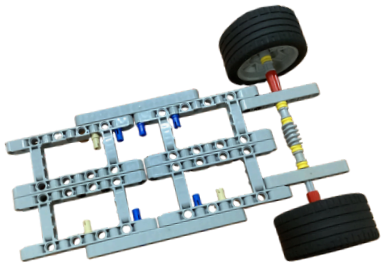




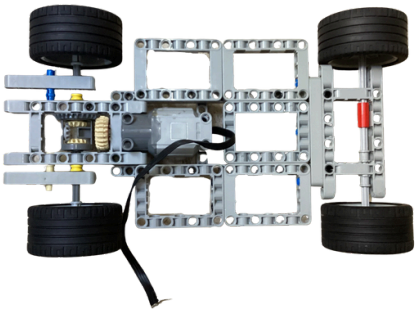
Struggled point:
stabilizing the motor between the Lego parts
I fixed the problem by adding blocks under and around them.



2. Assemble Shaft



Finished Car



Testing the Car

Battery Voltage / V	Time / m	Average Rounds per minute
9V	1 min	
6V	1 min	45 Rounds
3V	1 min	

Conclusion:
The solar car successfully converted light energy into kinetic energy, traveling a distance of 3 meters in 4 second in the presence of strong sunligh. The average speed was 0.75 m/s.