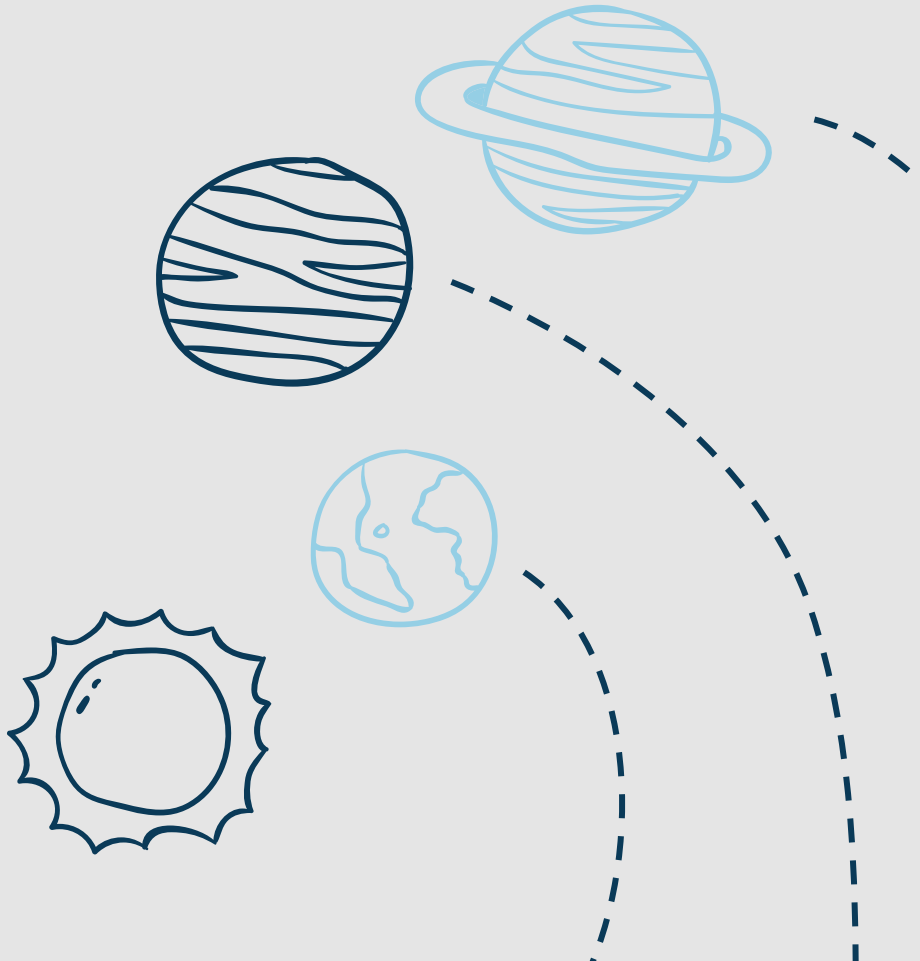
Team Silver Bang

"Never let it go"

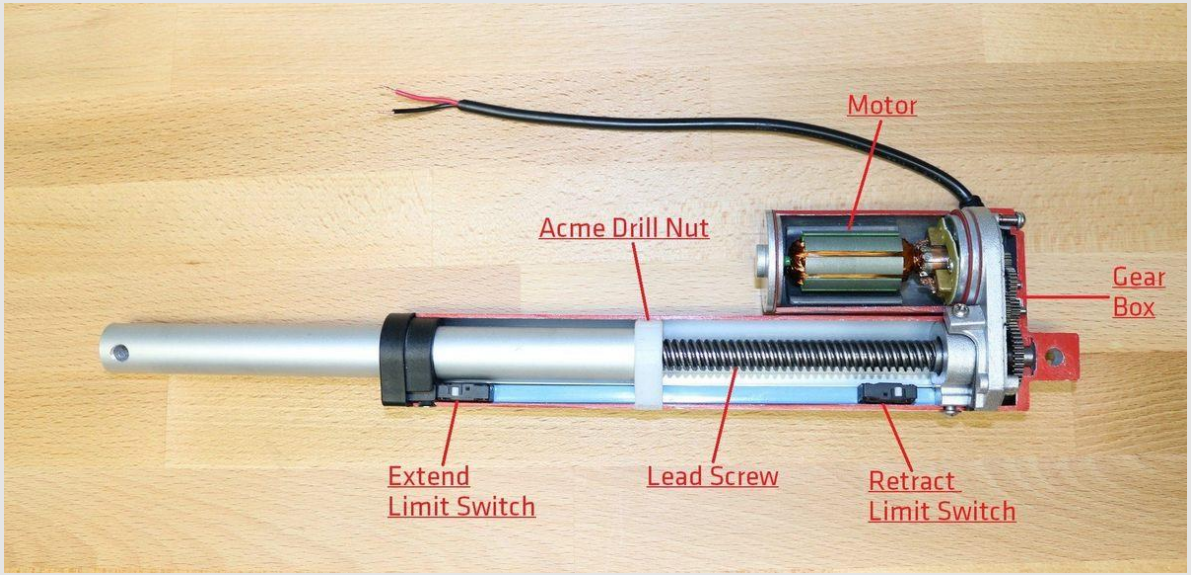
Parachute deploy mechanism

In this project,we are using double deploy mechanism for the deployment of the parachute and the payload. This deployment helps the rocket to land near the launch site and drastically decreases the recovery diameter of a field.



Design of the recovery system:

- In this recovery, we will be placing two actuators.
- One for each parachute. The actuators are run by 14A=NEMA 14A motor .
- The motor will run and pushes the piston . This process is done by Lead screw mechanism

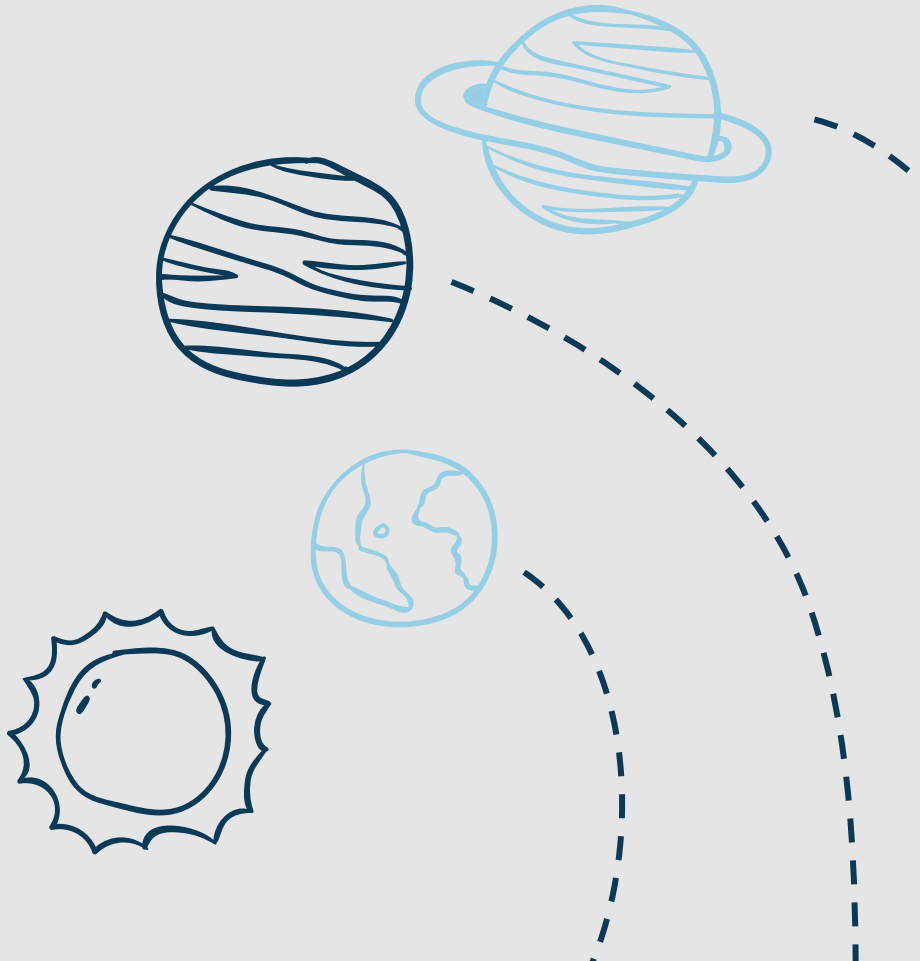


Sensors we are using:

For the Avionics we are using two main sensors with are:

1)BME280 Barometric, Humidity, Temperature sensor

2)ADXL345 Accelerometer



Flow of Both the Sensors:

1. Electronic On led blinking on
2. Lift of detected by the accelerometer and the all the sensors actively start saving data to Sd card module
3. BMP280 continuously record the altitude and the ADXL345 keeps a watch for the acceleration.
4. The apogee deployment of the drogue parachute occurs when the user defined altitude or the user defined acceleration is achieved.
5. The main parachute occurs when the user defined altitude is achieved
6. Acceleration is detected 0 and the rocket has landed successfully.

Code of if statement

```
  if ((bme.readAltitude(p_0/100.0)<= 100) && (activ.isFreeFall)){   // ejecting altitude(METER)
  digitalWrite(10,HIGH);                    //Drogue parachute deployment
  }
if ((bme.readAltitude(p_0/100.0)<= 50)){    // ejecting altitude(METER)
  digitalWrite(8,HIGH);                   //Main parachute deployment
  }
```

Proteus design