**Autopilot Development**Abhinay Kumar | 14-02-2025

**Objective**

**Requirements**

**Hardware selection**

1. Propellers
2. Actuators
3. Motor drivers
4. Power distribution unit
5. Power source
6. Airframe
7. Sensors
   1. Gyroscope
   2. Accelerometer
   3. Magnetometer
   4. Barometer
   5. LIDAR
   6. SONAR
   7. GPS
   8. Temperature sensor
   9. Humidity sensor
8. Processors
   1. Primary processor
   2. Secondary processor
9. Communication module
   1. Receiver
   2. Transceiver
10. Data logging module
    1. EEPROM
    2. SD card
    3. Flash drive
11. Audio-visual feedback module
    1. LED
    2. Buzzer

**Software development**

1. Constants
2. Math
   1. Utility
   2. Linear algebra
      1. Vector2
      2. Vector3
      3. Matrix22
      4. Matrix23
      5. Matrix32
      6. Matrix33
      7. MatrixNN
   3. Quaternion
   4. Axis angle
   5. Rotation matrix
   6. Direction cosine
   7. Cartesian 2D
   8. Cartesian 3D
   9. Polar
   10. Spherical
   11. Cylindrical
   12. Elliptical
   13. Ellipsoidal
   14. Coordinate transformations
3. Filters
4. Analyzers
5. System identification
6. Control
7. Monitor
8. Estimation
9. WMM
10. WGM
11. WAM

**Test rig development**