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
    7.1. Gyroscope
    7.2. Accelerometer
    7.3. Magnetometer
    7.4. Barometer
    7.5. LIDAR
    7.6. SONAR
    7.7. GPS
    7.8. Temperature sensor
    7.9. Humidity sensor
8. Processors
    8.1. Primary processor
    8.2. Secondary processor
9. Communication module
    9.1. Receiver
    9.2. Transceiver
10. Data logging module
    10.1. EEPROM
    10.2. SD card
    10.3. Flash drive
11. Audio-visual feedback module
    11.1. LED
    11.2. Buzzer

Software development

1. Constants
2. Math
    2.1. Utility
    2.2. Linear algebra
        2.2.1. Vector2
        2.2.2. Vector3
        2.2.3. Matrix22
        2.2.4. Matrix23
        2.2.5. Matrix32
        2.2.6. Matrix33
        2.2.7. MatrixNN
    2.3. Quaternion
    2.4. Axis angle
    2.5. Rotation matrix
    2.6. Direction cosine
    2.7. Cartesian 2D
    2.8. Cartesian 3D

Test rig development