

## LIST OF FIGURES

2.1	Internet of Things. . . . .	5
2.2	IoT Sub-System. . . . .	6
2.3	The Rotation Direction of The Motor in Quadcopter UAV. . . . .	7
2.4	The Quadcopter UAV. . . . .	8
2.5	The LiPo Battery. . . . .	9
2.6	The Brushless DC Motor. . . . .	10
2.7	The Electronic Speed Controller. . . . .	10
2.8	GPS U-Blox M8N with Compass. . . . .	11
2.9	Pixhawk 2.4.8. . . . .	12
2.10	Radio Telemetry 433 MHz 100 mW. . . . .	13
2.11	Latitude. . . . .	14
2.12	Longitude. . . . .	14
2.13	Mission Planner Software. . . . .	16
3.1	Design System. . . . .	18
3.2	The Schematic of Overall System. . . . .	19
3.3	Mission Planner Software. . . . .	22
3.4	Mission Path. . . . .	23
3.5	HDOP Value. . . . .	23
3.6	GPS Satellite Value. . . . .	24
3.7	Preflight Flowchart. . . . .	24
3.8	Mission Flight Flowchart. . . . .	25
4.1	Frame Calibration. . . . .	27
4.2	Accelerometer Calibration. . . . .	28
4.3	Compass Calibration. . . . .	29
4.4	ESC Calibration. . . . .	29
4.5	Quadcopter Path Movement. . . . .	30
4.6	Mission Flight Input. . . . .	30
4.7	Telemetry Logs for Altitude. . . . .	30
4.8	The Differences in Take Off and Landing Point. . . . .	31
4.9	The Coordinate Point from Mission Planner. . . . .	32

4.10 Taking The Coordinate Point of the Quadcopter Based on The Google Maps Calculation. . . . .	32
4.11 Measurement of The Distances via Google Maps. . . . .	34
4.12 The Quadcopter in Altitude of 3 m. . . . .	34
4.13 Altitude WP1 Graph Based on The Barometer,Manual Calculation, and Given Input. . . . .	35
4.14 The Quadcopter in Altitude of 5 m. . . . .	36
4.15 Altitude WP2 Graph Based on The Barometer,Manual Calculation, and Given Input. . . . .	37