ABSTRACT

At the top level hierarchy control, motion planning algorithms in charge of providing motion action. Motion action is crucial because it determines the position of the change process.

Quadcpter is a kind of aircraft with four propellers that can be controlled remotely or without a pilot (autopilot). There are two types of quadcopter's control; first, controlled by the remote control and second, it moves independently based on programs that given. Quadcopter has been selected because of it's advantage in mobility and flexibility in exploring the narrow area. Inertia Measurement Unit (IMU) has been used for stability control in quadcopter. Data from the sensors were integrated and processed using a microcontroller. PID was used to control quadcopter. All subsystems of quadcopter designed to minimize weight and cost.

The PID values on quadcopter that flewn with payload was greater than without payload. The PID values when quadcopter flewn without payload for pitch and roll phase were obtained 4.2; 0,030; 24. While at the time quadcopter carrying payload, PID values were obtained 5.1; 0,034; 38 for the same phase. Observations were made to reach a stable condition when quadcopter carrying payload so the yaw motion phase in this final project was ignored. In the whole system test, the differences all up wieght (total weight quadcopter-the-fly) was 47%.

keyword : quadcopter, inertia measurement unit, liquid splash, pitch, roll, yaw