Abstract

NCS is a system which controls, plant and sensors are connected into a computer network. With the NCS we can control the system via the frequency. NCS will be applied to control the direction of the position of Unmanned Aerial Vehicle (UAV) quadcopter, quadcopter a UAV technology where there is Flight controller (FC) and the four brushless motors integrated with Electronic Speed Controller (ESC), in order to get quadcopter maneuver. Within these UAVs also have the system IMU (Inertial measurment Unit) is gyro sensor and accelerometer for balance the UAV maneuver, then the sensor magnetometers to measure the magnetic force of the earth. One Utilization UAV also has potential to help the military to patrol guard an area.

At this final project created a stability control quadcopter position system using networked control system (NCS). But the achievement of this thesis is still limited to a position on the attitude control quadcopter, the attitude quadcopter starting position is at a predetermined degree. The system is built with the technique of networked control system, with the addition of raspberry pi as a controller module that controls quadcopter and Tp-links that are useful for data transmission lines. Communication from quadcopter to raspberry phi will use the WLAN. There are additional sensors such as CMPS10 used to support the position control system at quadcopter.

Results of this thesis is a system of networked control system in this thesis are implemented to make quadcopter can move towards a position degrees north to south degree has an accuracy rate of ±98.33% , to the west to the east degree has an accuracy rate of ±94,81%, to the northeast to the southwest degree has an accuracy rate of ±94.22%, to the northwest to the southeast degree has an accuracy rate of ±86.67%.

Keywords: Networked control system, quadcopter, degrees, position