DESIGN OF COMMUNICATION DATA SYSTEM ON UAV - QUADROTOR (SPACE INTEGRATION PAYLOAD UNMANNED SYSTEM) SILUMANS - 01 MODE

Student Name : Resita Andriana
NRP : 2410030007
Study Program : D3 Instrumentation Engineering
Department : Engineering Physics FTI-ITS
Supervisor : Fitri Adi Iskandariantio, ST.MT
Dr. Ir. Ali Musyafa, MSc

Abstract

A Quadrotor unmanned aerial vehicle (UAV) is a plane that is generated by four of stalling the motor speed is varied in order to obtain the specified movement. In addition, the automatic control of the Quadrotor is done by using a remote control and a set of sensors to provide position can be determined. In carrying Quadrotor there are several systems that are used, one of which is a data communication system. The purpose of this thesis is to create a data communication system with and without the use of cables. Data communication systems used are located wireless communication between the microcontroller and PC (server) using xbee module via radio frequency signals. The method is designed covers data transmission from the remote control to the master control to give orders to the Quadrotor to run at the specified position and data transmission of sensor readings Quadrotor movements sent by the master control on the server where the data will show Quadrotor position on the server. Transmission model, suitable for UAV studied are half duplex and frequency used is 115200. Xbee module performance is 90% due to the distance of 5 meters with a pitch value of 0.02; roll 0.12; heading 265.36; latitude -7.28374 and longitude 112.793021 data is not sent. At the time of data transmission delay uncertainties obtained at 0.00002 seconds. This occurs because of the interference environment at a
certain distance. Errors that occur in the delivery of data is the data that was not sent there at 10%.

Keywords: Quadrotor, Data communications, Xbee