ABSTRACT

Microlight aircraft is a type of aircraft that can only carry 2 people. This type of aircraft is very popular in the world of aerosport. However, this aircraft is very difficult to detect by airport RADAR. One solution to solve this is to use ADS-C. ADS-C is a flight tracker transponder technology used in the world of aviation by air traffic guides (PLLU) applied to aircraft that serves to send identity information and the position of aircraft that are in the air using satellite datalink. However, the rental price for datalink satellites for ADS-C transponders on aircraft is still relatively expensive and cannot be reached by hobbyists for microlight aircraft.

In this final project, a low cost ADS-C transponder model and payload concept is designed in the form of a flight tracker for microlight aircraft that functions as an ADS-C data transmission tool by utilizing the 4G LTE cellular network spread throughout Indonesia so that microlight aircraft can be detected by air traffic control (ATC). In this final project, the payload design uses the GPS Module as a source of information on the position, altitude, and speed of the aircraft, the Raspberry Pi 3 Model B as a minicomputer that processes ADS-C data, the Huawei E8372 modem as a medium for connecting to a 4G LTE cellular network. The module components will be designed according to size so that they can be placed on microlight aircraft and the like.

From the results of the achievement of the design and manufacture of prototypes, it is hoped that they can solve problems that exist in the aviation world, especially in microlight aircraft pilots and air traffic control (ATC) and other useful things. In addition, from the results of testing this device, it is expected to get the results and parameters obtained such as the efficiency of the device and the accuracy of the data obtained during experiments and research.

Keywords : ADS-C, Payload, Microlight Aircraft