

ABSTRACT

Drones are unmanned aircraft that are controlled by a remote controller. The main function of drones is as a tool or simple aircraft to facilitate human work or activities. Rotary wing drones with 4 rotors or commonly called quadcopters are proven to be the most balanced and easy to operate and have a large enough lift. However, its flying power is only 7 minutes to 34 minutes with a distance of 100 m to 10 km. Based on these problems, the hybrid blimp drone is the best solution. The combination of the lift power of the blimp and the lift of the drone itself will reduce the battery power used by the rotor. The author will design a hybrid blimp drone using a system that will recognize artificial markers from ArUco Markers for navigation. Therefore, it can assist in real-time tracking and find out the point to start or end the mission, making it easier to carry out activities.

This hybrid blimp drone consists of a camera that is useful as a monitoring tool and a tool for artificial sign recognition navigation systems, ArUco Markers as artificial markers to start and end missions, hot air balloons to help lift and buoyancy, quadcopter to move and fly with VTOL techniques. (Vertical Take-off and Landing), GPS (Global Positioning System) as a notification tool for flight location coordinates. The results of this study are the hybrid blimp drone can run automatically in a predetermined direction and can find out the starting and stopping points in carrying out its mission with an error value in actual conditions of 0.345 m and an error value of 0.24 m in ideal conditions and an error value of 0.24 m in ideal conditions. the accuracy of the GPS drone is 2 m. In addition, the detection of artificial signs in actual conditions is still less stable than ideal conditions.

Key Words: *artificial landmark, drone, blimp, hybrid, ArUco Markers*