DESIGN AND DESIGN OF A QUADCOPTER TYPE AGRICULTURE DRONE FOR SPRAYING PESTICIDE AND FERTILIZER LIQUIDS BASED ON A GLOBAL POSITIONING SYSTEM (GPS)

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ABSTRACT

Indonesia is one of the countries that has large agricultural output on the Asian continent. Agriculture is also a major milestone in meeting food needs by processing people's agricultural products into food which is processed into daily food. The problem that exists is that farmers who carry out agricultural maintenance such as spraying pesticides and fertilizers to control pests and fertilizing still rely on manual systems which require farmers to come into direct contact with chemical substances contained in pesticide and fertilizer liquids which have short-term and long-term side effects. This requires a pesticide and fertilizer spraying system with the help of flying robots such as drones or Unmanned Aerial Vehicles (UAV). In this research, by adding a spray actuator to a quadcopter type drone that is integrated with a Global Positioning System (GPS), spraying can be done automatically by flying the vehicle while spraying following the GPS coordinates of the drone's flight mission. The resulting vehicle has dimensions of 30x30x21.5 which uses a 1400kv brushless motor and 8.0x4.5 inch propeller, capable of flying for approximately 3 minutes without a load in the tank with a 1300mAh battery. Meanwhile, when the tank is filled with the vehicle's maximum lifting capacity (150ml), the drone vehicle can fly for approximately 1 minute.

Keywords: *Agriculture, Quadcopter, GPS, Spraying.*