ABSTRACT

Along with technological developments, UAVs (Unmanned Aerial Vehicles) have been widely used to monitor natural conditions and reach large areas that cannot be reached by humans in a short time. The ability of UAVs that can fly autonomously is an option as a means in the plantation sector. The large area of tea plantations can be reached more easily by using a UAV. The use of the UAV is used to transport the GPR load which will later fly through the tea plantations automatically starting with the UAV taking off to landing.

Thus, in this final project, we will design a multirotor UAV with a hexacopter type that has the ability to lift a GPR (Ground Penetrating Radar) load of 2.3 kg. The automatic movement of the UAV will facilitate the work, because it does not require special skills to move the UAV using the remote control.

The results of this study indicate the ability of the UAV to maintain altitude with an error value range of 0.81% to 2.77% for the ability of the UAV without carrying the GPR load. Meanwhile, the UAV's ability to maintain altitude by carrying GPR loads has an error value range of 0.83% to 3.46%.

Keywords: *UAV, GPR, holding position, hexacopter*