Autonomous Surveillance UAV

Schrock, Tate (School: Arickaree School)

The purpose of this project is to design and construct an autonomous or manually controlled inexpensive UAV prototype that can assist in information gathering for the civilian population. Even though this UAV's concepts can be applied to a range of industry, it will primarily focus on agricultural information gathering. For this experiment, the UAV will be constructed of foamboard and include a flight controller capable of autonomous navigation and manual control. Onboard the UAV, a dome-shaped gimbal was designed, and 3D printed and encloses an analog camera that livestreams video to the ground control station. The flight controller also allows flight paths to be uploaded from the ground station for autonomous navigation. Throughout the design, construction, and testing of this UAV, a successful prototype of an autonomous unmanned aerial vehicle was built and meets the objective of agricultural surveillance. The craft is able to fly at 35 mph cruising speed, 45 mph max speed, and have a maximum travelable distance of 5 miles. It uses a 2216 880kv motor with a 11x8 propeller, a Pixhawk 4 flight controller, and a 5.8 GHz FPV camera transmitter.

Awards Won: