

Aircraft System

CONTROL STATION

The ground control station (GCS) (see Figure 1 and 2) configuration includes a rugged Tablet PC which contains the Mission Control Software (MCS) and the Base Station which communicates between the tablet and UA. The tablet provides the operator with three main sections which include the map area used for managing the flight of the Scout, camera view used for managing the camera, and the status section used to display messages to the operator. On the lower left hand of the Scout command station is the 'system status' display. The status of the operation display is indicated by color, a blue box indicates there are no issues with the current flight, a yellow box indicates conditions that could be threatening to the flight operation, and a red box indicates conditions that could seriously threaten the flight operation.

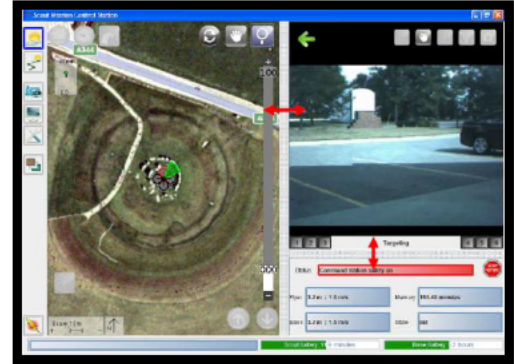


Figure 1: Tablet Display

Two flight operation modes are available for the operator. The Manual Flight mode allows the operator to guide the aerial vehicle from position to position by simply pressing and holding the desired area for the UAV to approach on the 'map area' of the command station. This feature allows the pilot to navigate on demand. This is different from the Waypoint mode which restricts the operator to select a predetermined path through specified positions. Prior to performing the waypoint operation the pilot must plan the flight with the Flight Planning mode. Once all waypoints are selected and all 'no-fly zones' are established and the UAV is in operation, the UAV navigates itself by means of GPS and magnetometer.



Figure 2: Base Station

The link between the Command Stations and the Base Stations uses an 802.11b/g WLAN which operates between (b) (2), (b) (4). It uses a channelized system to optimize communication between the stations. This link has a maximum effective range for high data rates up to 30 m; however, the system described limitation of 10 meters to ensure excellent connectivity.