

## FINAL APPROACH

BY JAIME LAGOR

### Radio control flight *From hobby to career*



**M**any of us would like to earn a living flying RC planes, and Mike Morgan of San Diego, CA, has found a way to do just that! Mike has been able to incorporate his passion for flying remote-control planes into his work as a land surveyor. He uses a 1/4-scale World Models Piper Cub to take aerial photos—all by remote control. The highly modified Cub weighs 15 pounds without the camera equipment and 22 pounds all decked out and ready for work. Powered by a Kohler Actro 40-5 brushless motor with a 30-cell 2600mAh NiMH battery, the Cub can stay aloft for 10 minutes—long enough to photograph one square mile of land.

The Cub's payload includes a Pentax 645 medium-format camera for high-quality prints with a 35mm-wide-angle lens mounted on the bottom of the plane. The Cub can photograph a large area of land at an altitude of 400 to 1,000 ft. Mike also mounted two video cameras in the plane that send real-time telemetry to a Sony digital recorder with a 5-inch LCD screen. One of the video cameras is pointed out the front window, which enables Mike to fly the plane by just looking at the screen. The other video camera is attached to the Pentax's viewfinder and shows what the camera sees. Switching back and forth between the video cameras only requires a flip of a switch on the transmitter. Stuffed in between all of the camera equipment is a Garmin GPS receiver that gives an overlay readout on the video screen, showing the current latitude, longitude, air-



speed and altitude (in meters)—extremely important information needed for land surveying. A stout roll bar in the cowl protects all of this equipment from rough landings, which is a nice feature because many of the fields

haven't yet been graded when aerial photos are needed.

A typical assignment goes like this: Mike straps on his backpack containing the equipment that receives all of the video telemetry from the plane. After he checks to make sure that everything is working properly, the plane takes off. The electric motor is very quiet, so this flying plane will not disturb the environment. Once the plane reaches an altitude of about 1,000 feet, Mike hands the video screen to the client, and they are able to see the view through the Pentax camera. The client can now tell Mike in which direction to fly so that the property to be surveyed can be lined up in the viewfinder. When the plane is directly over the area, Mike flips the switch to the forward video view and then back to the viewfinder video camera. This does two things: the Pentax camera snaps a photo, and the telemetry from the GPS receiver is recorded on the video continuously. When the video view is changed from the front to the viewfinder camera, the GPS information on the screen shows the plane's precise location at the time of the photo. The GPS data is transferred to a file called metadata which links the aerial image with real world coordinates. For the final product the client's data is merged onto the aerial image.

Mike turned his love of flying electric radio-control aircraft into a business. He formed a company where he also builds and repairs R/C aircraft called [MorganTech.com](http://MorganTech.com).

