

FPV IS EASIER THAN YOU THINK

by Tom Inderkum

Four years ago I got interested in RC planes and soon became aware of the possibilities for aerial photography and FPV (First Person View) technologies. Aerial photography was rather easy to get started with. Thirty Eight dollars for a HD video camera from HobbyKing and a little bit of Velcro tape and I had the ability to produce hours of aerial video. But what I really wanted to do was FPV (First Person View). The ability to send a live video signal from the plane to the ground remained somewhat of a mystery and the cost at that time was rather steep. As time past I got the chance to experience first hand what the view from the cockpit was like. Thanks to Todd E. and Tom O. for that opportunity. Still, the complexity of the systems seemed like more than I wanted to deal with and the price of a decent set up was more than I cared to gamble on a technology I did not fully understand.

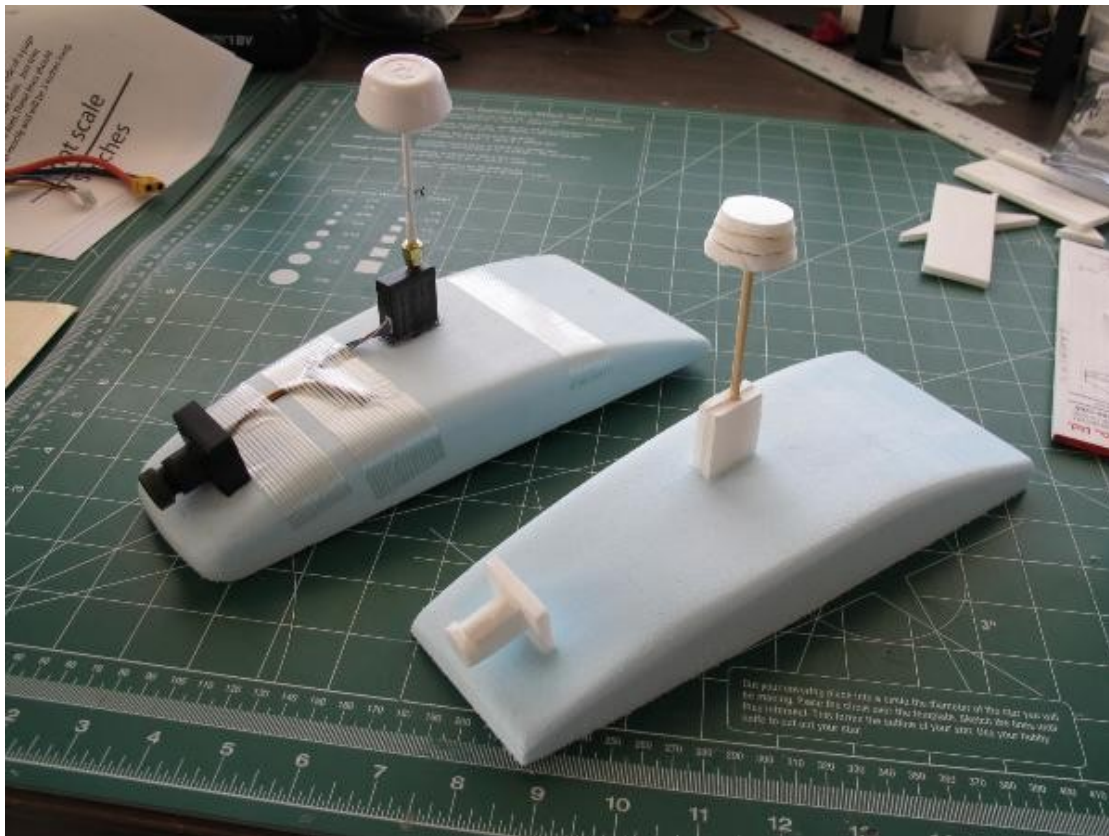
Once again it was HobbyKing to the rescue. As prices for the systems dropped the systems themselves became more complete to the point that it is now possible to buy a full set up for around a hundred dollars (HobbyKing part # 9171000553-0). The components (camera, transmitter, receiver, monitor and cables) are matched and basically “plug and play”. So I ordered a system and had it connected and working in a matter of a few minutes. Now I just needed to figure out what plane to install it on. After careful consideration of all the planes in my hanger I decided to build a plane out of Dollar Store foamboard using affordable Turnigy gear from, you guessed it, HobbyKing. The airframe I chose is called the “FPV Bi-plane” and is built from plans from a website called MikeysRC.com.



Quad elevons, big rudder, lower wing with airfoil, upper wing dihedral, mid wing prop; It's a strange looking contraption that has been likened to a flying river boat by our President Doug B. To be sure, it will never win any awards for style or beauty but it has some things going for it that make it an ideal candidate for a first FPV platform.

- 1.) It's cheap to build. Built from Dollar Store foamboard and packing tape.
- 2.) It can fly very slowly.
- 3.) It is quickly self leveling. If you are flying through the monitor and you lose the signal, or get disoriented, you can just let go of the controls and this plane will quickly level itself and then just chug along slowly until you can get a visual on it.
- 4.) It can carry a lot of weight (more on this later).
- 5.) Mid-frame mounted prop allows for an unobstructed camera view and reduces vibration that can cause a wavy video effect referred to as “jello”.

So after completing the build I was anxious to get it in the air but the voice of reason kept telling me that it was a bad idea to maiden this heavy weight (2 lbs. - 9oz. On a 40” wing span) with the FPV gear installed. My inner child kept telling me it would be all right, after all, this is a proven design and you are an experienced pilot. Well this time the voice of reason won out (there may be hope for me yet). I decided to mock up a dummy nose for this plane, with camera and transmitter made out of foamboard, to see how it would fly and what effect the FPV components would have with regard to disturbing the air in front of the propeller. You see this plane uses a mid-wing prop system, not exactly a pusher since the prop is nearly on the center of gravity, yet definitely not a tractor type either.



“the real gear and the dummy mock up”

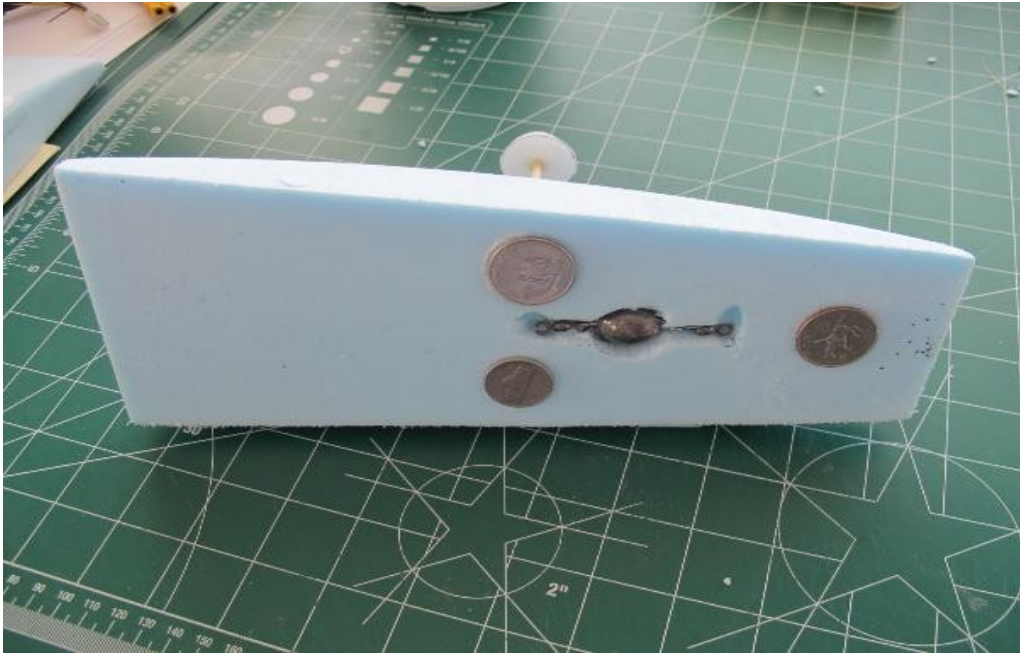
Now it's time for some arithmetic.



“67.7 grams for the real gear”



“20 grams even for the mock up”



“fifty five cents and a fishing weight later”





When I realized the all up weight of over two and a half pounds I became convinced that I was doing the rite thing to maiden this beastly misfit of a plane without risking the FPV gear. With an ever so gentle breeze blowing out back I figured it was now or never.



“it's go time”



With proof of concept completed all that remains is to put the real gear on the plane, strap on the cool looking head gear / monitor and give this baby a try. But wait, what's that? It's that pesky voice of reason again. And it's reminding me that I need a co-pilot to fly FPV. Dang! I guess I'll have to wait.

Two days later and it was off to Jay Carey Memorial Field with the real gear on the plane. Conditions were calm and with Richard B. and Steven F. standing by, ready to take over the controls if it became necessary, it was time to fly. I should mention here that it is impossible to look like anything other than a complete and total GEEK when wearing the FPV headset. It consists of a video screen set into a black, Styrofoam box that straps to your face. From this box hangs a battery of considerable bulk, a receiver box with an antenna and several assorted wires and connectors that connect all the bits together and make the whole thing work. Looks notwithstanding, I proceeded to launch the plane and check the trims while Richard and Steven got a chance to view through the monitor a bit. Then, with a little help, I got the monitor on and for the first time I piloted a model plane from the cockpit point of view. It was good fun however I immediately realized that the camera needed to be angled down a bit more. Ideally the upper third of the video screen should be skyline with the bottom two thirds being a view of the surrounding landscape. I had it roughly the opposite, with only the bottom third showing landscape and the upper two thirds showing the sky. This made it difficult to navigate and the only time I was really sure where I was going was when I was flying toward Mt. Konocti.

So after a while I removed the head gear and piloted the plane to a safe landing and, as I have so often done before, came home with a good experience and a lesson learned. The camera has now been re-positioned and the system is working flawlessly.



To wrap this up I would just like to say that if anyone is sitting on the fence about trying FPV flying now is the time to take the plunge. The price has never been lower. The quality is there. There is lots of support via the internet and who knows how much longer it will be before this aspect of our hobby may become illegal or so highly regulated that it won't be worth the bother. My advice is go for it, be safe and have fun!