Brief (marketing-style) product description

Human beings have always been curious and eager for knowledge. This drive for more information has benefited the human race by rewarding it with evolving technologies. Eye In The Sky was designed to satisfy this curiosity. Now sitting on your couch at home, you can survey your surroundings and capture awe-inspiring sights on video and images.
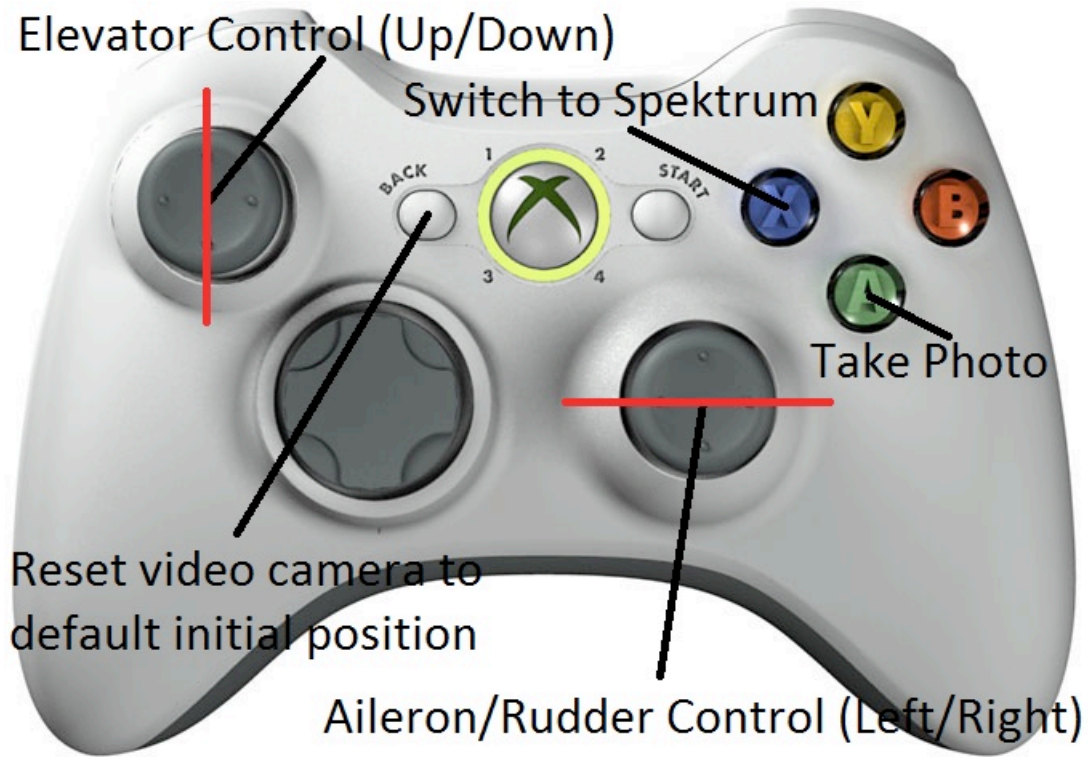
Eye In The Sky is a reconnaissance system which can be used to relay real-time video to a user. It consists of a RC plane, controlled via a custom designed console, transferring data to and receiving instructions from a base station. Along with the video, the plane sends back information like location, altitude, direction, roll, yaw, pitch, speed which makes it easy for the user to control the plane. The video feed is from an on-board camera which can turn around as commanded from the base station. There is a high-resolution camera on board which takes photos on command. All of these sensors give off the impression that the user is in the cockpit, while he may be confined to the comforts of his home. Just like a real plane, this system has a data acquisition unit (colloquially referred to as a "blackbox") in which it stores pertinent information like location, altitude, velocity and photos. This data can be used for analyzing the flight plan or finding out where the plane lost control.
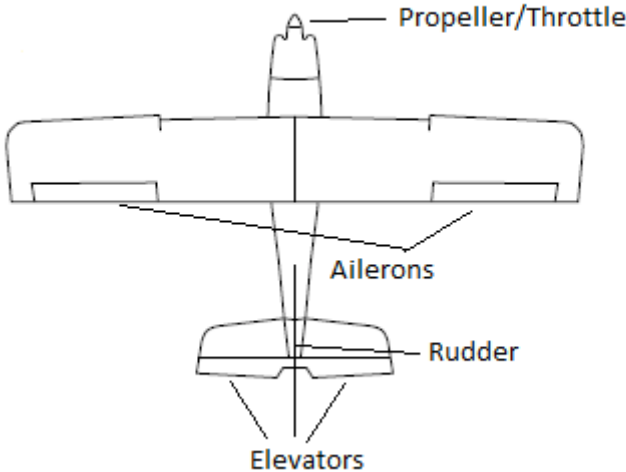
Eye In The Sky comes with a RC plane, 11.1V battery and recharger and a controller to direct the plane. The controller has been adopted from the popular gaming console, Xbox 360. Given the immense popularity of the Xbox 360 system, it will be easier for the user to control the RC plane because of the familiarity and feel of the controller. In case of the RC plane spiraling out of control, there is provision for controlling the plane with a different controller.

So put on your flying cap and get ready to observe and study your environs from a birds eye point of view. Now that this frontier has been conquered, the end user does not have to be in the military to operate his own personal "eye-in-the-sky". When George Orwell wrote the epochal "1984" and made the quote "Big Brother is watching you!" commonplace, little did he know that one day, someone might actually be using RC planes, not to spy on people, but to take in his surroundings and satisfy his curiosity. And all of this is possible at a mere one-time cost of $1200.

Eye In The Sky has undergone testing and its environmental impact has been kept as minimal as possible. It was designed to be a lightweight energy efficient system and all of it's parts have been ROHS-certified.

Product Illustration

Elevator Control (Up/Down)

Switch to Spektrum

Take Photo

Reset video camera to default initial position

Aileron/Rudder Control (Left/Right)

Video Camera Left
Video Camera Right

Throttle Down

Throttle Up

Product setup instructions

Preparing the UAV

1) Remove the wings of the supplied plane.

2) Plug the LiPo battery into the matching connector in the undercarriage of the plane.

3) Pass the small connector through the undercarriage to the top side, and plug into the power connector on the circuit board.

4) Plug one SD card into the SD card slot on the circuit board.

5) Plug the other SD card into the still image camera.

6) Close the undercarriage and replace the wings of the plane.

7) Set the plane on a flat, level surface and begin software setup.

Preparing the Ground Station

1) Install Microsoft XNA 4.0 Framework

     a. http://www.microsoft.com/download/en/details.aspx?id=20914

2) Connect the XBee Pro module with the Explorer Board into a free USB port on your Windows-based PC. By going to Control Panel -> Device Manager, make sure that it is connected to COM3. If not, click on the XBee module under Com Ports on Device Manager, and set it's port to COM3

3) Connect the Xbox 360 wired controller or a Xbox 360 wireless receiver to another USB port, switch on the controller and make sure that it is recognized by the PC

4) Plug the Audio/Video lines into your PC if your graphics card supports composite (RCA) in, otherwise plug it into a TV.

5) Open the supplied application with the Eye in the Sky

6) If you are using a PC to get the composite video via a graphics card/TV Tuner card, open up the video capture software supplied by the manufacturer.

Product use instructions

Handling Warning: An RC aircraft is not a toy! If misused, it can cause serious bodily harm and damage to property. Fly only in open areas, preferably at AMA (Academy of Model Aeronautics) approved flying sites, following all instructions included with your radio. Keep loose items that can get entangled in the propeller away from the propeller including loose clothing, or other objects such as pencils and screwdrivers. Especially keep your hands away from the propeller (Apprentice RTF Assembly Manual).

Flight Warning:As per FAA regulations, the aircraft must:
a.) Not be flown in excess of 400 feet.
b.) Leave the line of sight of the user.
c.) Carry any type of payload.
d.) Not fly into unauthorized airspace.
e.) Take pictures/relay video of people or private property without prior consent.

Eye in the Sky does not take any responsibility for damage to property or injury caused by flying the plane.

Advisory: It is highly recommended that the user using the RC plane has prior experience in flying the aircraft. The circuitry on-board is susceptible to breakage upon sever mechanical shock. Taking-off and landing must be done in a gentle manner.

Pre-Flight:
1) Once, the software and hardware are calibrated and setup, place the plane on a flat area away from any obstacles.

2) Move about 30 paces from the plane (90 feet/28 meters). You should have total control of the model from this distance when the XBee is connected to the base station.

3) Inspect the control of the ailerons, rudder and throttle using the appropriate stick on the Xbox controller.

Flight:
4) When ready to take off, power up the engine to full throttle.

5) Once in motion on the ground, use the elevator controls to take off.

6) Steady the plane using the aileron and rudder controls as it begins take-off and gains altitude.

7) Once the plane is in the air, use the aileron, rudder and throttle controls to control the plane like you would on a conventional RC plane.

8) Use the video receiver module and the ground station software to keep track of the plane.

9) Do not fly the plane to a distance of more than 1 mile away from you. Doing this could cause you to lose sight of the plane(a violation of FAA regulations) and lose range on the wireless module.

10)   Use the video camera control buttons to change the direction in which the video camera points. This can be used to obtain a 180 degree view from the plane's cockpit.

11)   Use the camera trigger button to click pictures at the desired locations. These pictures will be stored on the SD card attached to the camera.

12)   If at any stage, the system seem unresponsive to ground station control, hit the "switch to Spektrum" button to switch to the conventional RC plane control system of the Apprentice 15e.

Product troubleshooting instructions

The computer application crashes directly on boot-up?

- ⚔ Check that you have Microsoft XNA 4.0 and Microsoft .NET 4.0 installed on your PC. Additionally, for maximum stability of the application, please make sure that you are running a version of Windows 7.

The computer application starts, but pressing the triggers/moving the sticks on the Xbox controller does nothing on screen?

- ⚔ Check your Xbox 360 controller's connection with the PC. If it is a wired version, please install requisite drivers. If not, make sure that the wireless receiver for the Xbox 360 is functioning properly by going to Control Panel -> Device Manager

Pressing the triggers/moving sticks on Xbox controller leads to changes on screen, but no changes on the plane?

- ⚔ Ensure that the power regulator attachment is properly secured to the main circuit board, and is correctly oriented based on figures in previous sections.

- ⚔ Ensure that the battery is properly connected to the correct input with the proper orientation based on figures in previous sections.

- ⚔ Ensure that the system is outdoors, with nothing other than the wings blocking "line of sight" to the sky.

- ⚔ Ensure that the headers are securely attached and properly orientated based on figures in previous sections.

- ⚔ Ensure that there are no metal objects other than parts of the system inside the fuselage.

- ⚔ Inspect the circuit board to ensure that no parts have sustained obvious mechanical damage.

- ⚔ Ensure that the wireless transceivers (Xbee modules) are connected securely on both the plane and the base station.

I have control of the plane and the compass and other sensors seem to be working. However, the map is stuck on a world map screen and is not updating?

- ⚔ Ensure that the system (atleast the plane) is outdoors and the sky over it is not blocked by buildings or such.

- ⚔ Wait for the plane to receive satellite signal, as soon as it gets this, the map on the base station will update to show the current location.

Everything else works fine, but I do not have video signal from the plane?

- ⚔ As long as the plane has power, it will be transmitting video signal to the RCA cable on the base station

- ⚔ If you are using a graphics card/TV tuner to display this video on a PC, please check the software that you are using to confirm that it is functional. Refer to the graphics card/TV tuner's manufacturer guide for more information.

- ⚔ If you are using a TV, please make sure that you have switched to the correct input on the TV. Refer to the TV's manufacturer guide for more information.