Name(s)

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Project Number

S1314

Project Title

Autonomous Rescue Chopper

Abstract

Objectives/Goals
Achieve the following: 1. 2D Image Capture; 2. 2D Image Recognition; 3. Stereo 2D to 3D Mapping (Trig); 4. XYZ Potion Tracking; 5. Navigation; 6. Autopilot; 7. Computer USB Digital Interface; 8. Digital USB to Analog converter; 9. 4 Channel Analog Converter to Radio Remote Interface; 10. Equations of Motion; 11. 2D to 3D Mapping Trig; 12. 3D Rotation; 13. Graphic User Interface.

Methods/Materials
How:
A model electronic helicopter that will be modified with a magnet to be able to pick up the item needed to be saved, in this case the rescue button. The rescue button will be a LED circuit board. An analog to a digital converter will make it possible to for the computer to control the helicopter. The converter will connect from the inside of the controller to the computer. In order to view the helicopter a camera will be needed will a mirror image split, this is where the LED come into play. Once you have a perfect split then use trigonometry to calculate the distances from LED to the camera, from the camera to the helicopter, then from the helicopter to the camera.

Materials: 1. Helicopter; 2. Receiver ; 3. Camera; 4. Computer (1.5GHz, 2 USB ports); 5. 2 LED Flashers (Person); 6. Magnet; 7. Software; 8. Cable for Converter; 9. Circuit Board; 10. Digital to Analog Converter; 11. Interface; 12. Controller; 13. Wood.

Results
1. 2D Image Capture: Success; 2. 2D Image Recognition: Success; 3. Stereo 2D to 3D Mapping (Trig): Success; 4. XYZ Potion Tracking: Success; 5. Navigation: Success; 6. Autopilot: Success; 7. Computer USB Digital Interface: Success; 8. Digital USB to Analog converter: Success; 9. 4 Channel Analog Converter to Radio Remote Interface: Success; 10. Equations of Motion: Success; 11. 2D to 3D Mapping Trig: Success; 12. 3D Rotation: Success; 13. Graphic User Interface.

Summary Statement
My Project allows a helicopter to opertae on its own and ppick up an item.

Help Received
step father helped buil;d curcuit board