The Development of a Wireless Control System for Integration on Drones

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The use of remotely controlled drones has proven to assists humans in day to day life. Whether it be by keeping our military personnel safe, defusing bombs, or exploring parts of space humans have not yet reached. The purpose of this project was to develop a control system that can be used on a drone. The control system allows a user to control a radio controlled vehicle up to 300 yards away. It contains a wireless video feedback system so that the user can still control the vehicle even when it is out of the user's line of sight. The user controls the vehicle with a custom made software package that includes a graphical user interface. The software takes commands from the user and transmits them through the serial port to an xBee module. The xBee module on the vehicle receives the information and transmits it to the microcontroller on the vehicle. The microcontroller then executes necessary commands and sends any feedback required. The software package includes controls for the steering, throttle, and camera control. The outcome of this project is a control system that can be incorporated in to future drone projects. The software is fully documented to make customizing it to individual projects simple. The circuitry on the receiving end of the control system contains serial ports to make it possible to integrate any other peripheral technology in to the existing control system. The end result of this project is a working prototype that will allow future students to build off of. This will expedite further research of drones at IUPUI.

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