Automated Delivery Drone

Team members: Runing Yang, Ryan Lu, Mingyuan Wu
Professor Stuart Kleinfelder
Department of Electrical Engineering and Computer Science

Background/Goal

Delivery service has been very efficient in nowadays online shopping and food delivery environment. However, none of these services are automated as well as to door service. Therefore, we are designing a commercial use drone with the purpose of delivery from small packages to food. The end goal is be able to automate the drone through GPS tracking as well as visual recognition to avoid obstacles to minimize potential damage to people around the drone.

Hardware/Software

Hardware: Brushless motors, frame, battery, camera, GPS devices, Arduino UNO board

Software: Computer vision and flight control of the drone (through python). Mobile app for GPS tracking (IOS/Android)

Current Progress

Work done:
1. Computer vision training and logo designing
   The logo is regarded as the destination, when it is recognized, the drone will switch to landing model.

2. Initial realization of quadcopter flight
   We've designed codes to make the Arduino board to drive brushless motor and achieve the same function as the PID controller to help our drone hover at the settled height stably.

3. Actively researching on wireless communication
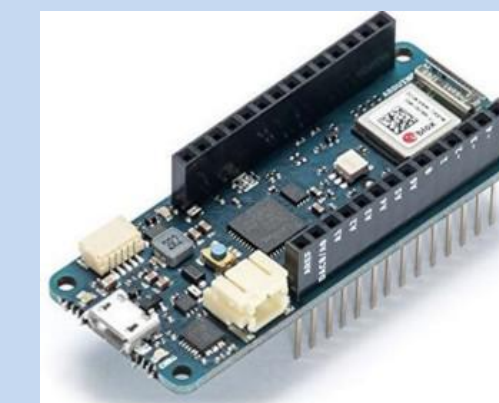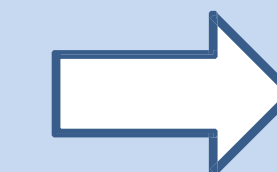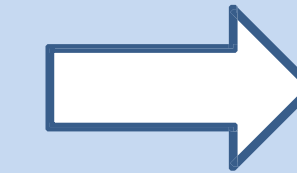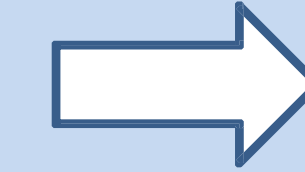
Future Work

1. Test the stability of our drone's hovering process and improve the control algorithm and codes.

2. Design codes to make the drone land gently, therefore the package won't get damaged.

3. Achieve the wireless communication between Arduino board and computer. Try to transfer the information collected by camera to the personal computer.

Milestone Goal

1. Realize the stable hovering and landing process/ Fall week 1-8
2. Visual recognition (recognize target destination)/ Fall week 1-7
3. Realize the communication between Arduino board and computer. /Fall week 7-10

Team Organization

Computer vision and image recognition:
Ryan Lu, lur@uci.edu

Quadcopter flight control and wireless communication:
Runing Yang, runingy@uci.edu
Mingyuan Wu, mingyuw6@uci.edu

Reference

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