Pi Pico Drone Fleet Project

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Ember Ipek

A New Controller

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I had an idea for an AI controlled drone fleet that could fly in different formations and dynamically switch between defensive and offensive strategies depending on surroundings. Unsure of where to start, I just ordered the cheapest drone I could find on Amazon, the HS210. I opened it up to find a PAN7420S7FA chip, which I found out is a 2.4GHz Bluetooth transceiver. I figured I could interface with it using a Pi Pico W mounted onto the drone and route the 3.7V LiPo battery to power both the Pico and the drone. I also picked up an HC-SR04 ultrasonic sensor and powered it through the LiPo battery and connected the trigger pin to GP2 and the echo pin to GP3. I soldered this circuit onto a protoboard and had trouble getting readings from the sensor, but the drone is receiving power. Building the circuit on the breadboard, I was able to get readings and found that my soldering needed reworking.

Next step is to use a regular RPi to act as a “flight controller” for the Pico modified drone to implement a collision avoidance system. This would involve sending data packets to and from the Pico W using wifi. Once this is working, perhaps I would like to add an accelerometer and gyroscope as a DIY IMU to facilitate pitch and yaw control. Potential issues: wifi lag, processing power limitations, weight.