An Eye in the Sky: Determining the Viability of Using Drones for Agricultural Improvement

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As the world's population continues to grow, and the percentage of farmers continues to decline, we are forced to find new ways to feed a hungry humanity. I have an idea. Satellites have been using infrared and visible spectrum cameras for decades to monitor Earth's vegetation from space. Using this type of data, farmers can pinpoint areas in their fields that need more attention, such as irrigation problems or nutrient deficiencies. However, high resolution images from satellites are too expensive for most local farmers. My idea is for local farmers to use drones to acquire accurate data to improve crops and reduce environmental impact. My study evaluated two questions. Can farmers be easily trained to operate a drone and is the analysis of the images created useful for improving crops and reducing chemical use? It took several months of building and testing, but I have concluded that the answer to both questions is yes! I designed, built, and tested a drone that has proven itself to be useful for finding problem spots in fields. The drone can determine which areas in a field need chemical treatment and which areas do not, thus reducing chemical and fuel use by spot treating only those areas. I also developed a process to easily teach farmers how to successfully operate the system in a short period of time. In conclusion, I believe this technology has great applications and will be vital for the future of modern agriculture.

Awards Won:

First Award of $5,000

Philip V. Streich Memorial Award to the London International Youth Science Forum