Improving Human Interfaces for Commercial Camera Drone Systems

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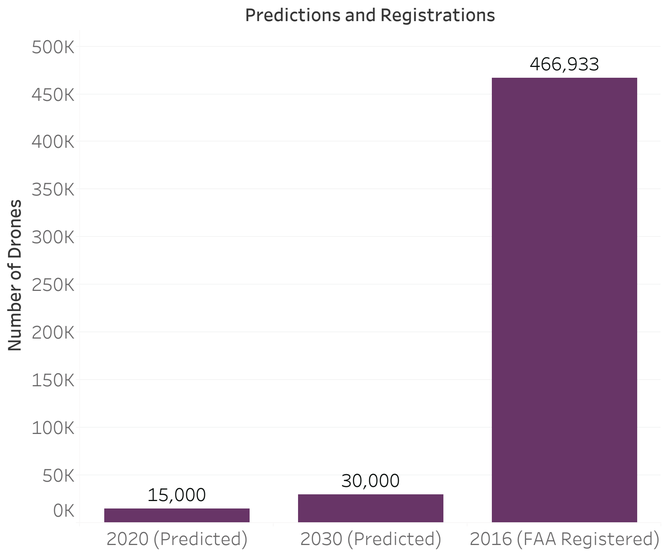
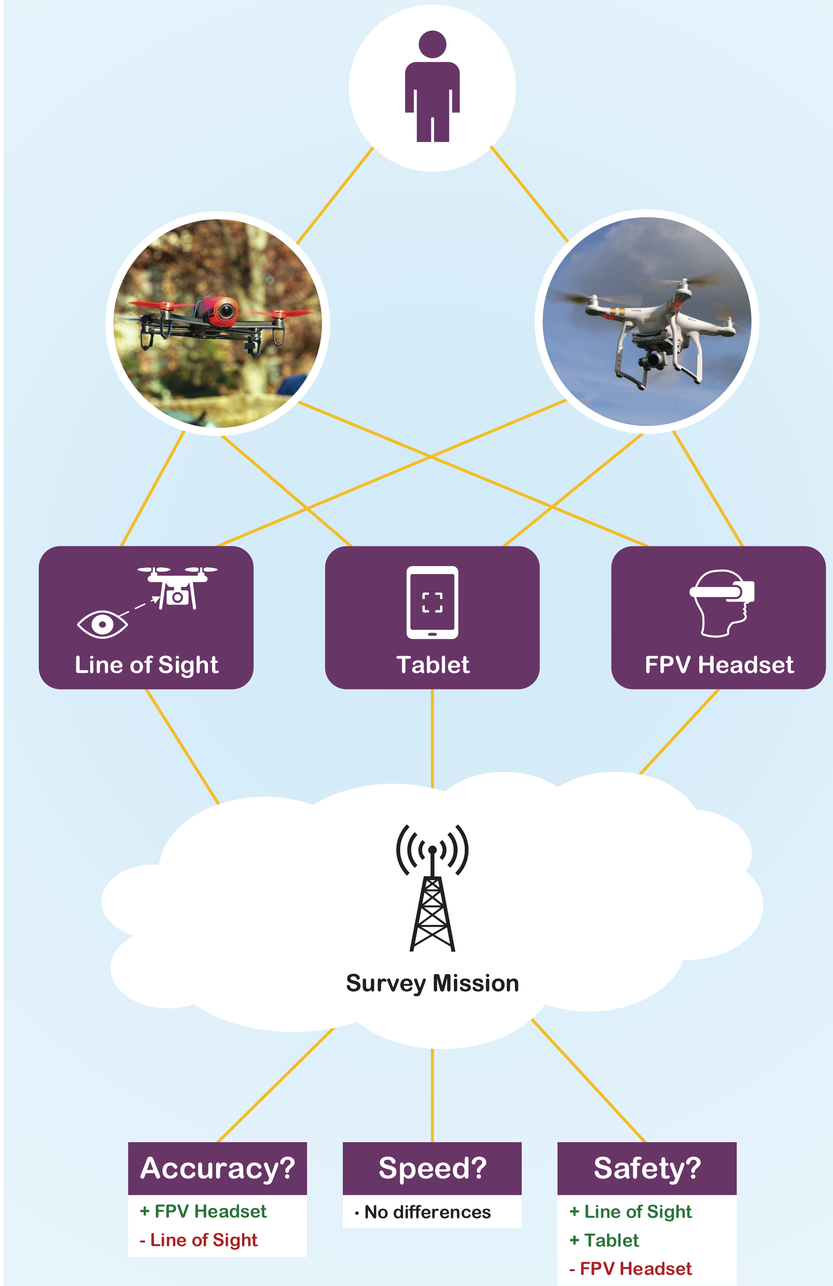
Motivation

In 2014, the NASA Ames Research Center warned that introducing remotely piloted aircraft into non-segregated national air space “could result in easily preventable accidents that may undermine public confidence,” resulting in property damage, or even loss of life [1]. With the recent exponential growth in drone popularity among hobbyists and commercial operators, there is a need for new research into these valuable - and potentially dangerous - human interfaces.

Drone Popularity



References: [1] Alan Hobbs and R Jay Shively. 2014. Human Factor Challenges of Remotely Piloted Aircraft. 31st EAAP Conference.



Lesson Learned

Value of mixed-methods approaches for exploring beyond initial hypotheses

Commercial drone technology is in its infancy, with limited current research and often barebones software implementations

Remote flight is fundamentally challenging, and human needs will require new support systems to be developed

Future Work

Augmented reality applications for hybrid visualization, to enhance - rather than replace - human perceptions

Virtual/mixed reality immersion using 180°/360° cameras to reduce cognitive deficits

Improved HUD and added proximity sensors for First Person View (FPV), to better support limited displays