Assessment of sUAS for Digital Literacy

Educational Requirements

Matthew See, Aerospace Engineering Major
Casey Calamaio, Research Engineer at UAH RSESC

Introduction
The Alabama Unmanned Systems Operations Mastery for Educators (AUSOME) is an FAA sponsored STEM education program focused on introducing educators to drone technology as a teaching aid in the classroom. This RCEU research built off of the AUSOME program to look more deeply into the application of drones to satisfy computer and digital literacy requirements in the Alabama Dept. of Education standards.

Key Findings
In the Alabama Digital Literacy and Computer Science course study five main content standards are outlined. [1]
- Computational Thinker: Students are challenged to compute different missions, but it is up to them how that is done.
- Citizen of Digital Culture: Students will search online for the code required to send commands to the Tello EDU.
- Global Collaborator: Students will collaborator with one another to write the scripts to accomplish the missions.
- Computer Analyst: While writing the different scripts for the missions' students will have to debug the programs.
- Innovative Designer: By having students search online for the code at the beginning of the lesson they will use various digital tools to accomplish this task.

Conclusions
For ten weeks during the summer in 2022, over 250 teachers attending Space Camp for Educators were presented the sample lessons plans created from this research. These lessons include:
- Lesson One: Using the Tello EDU drone and the block programming language DroneBlocks students are taught the fundamentals of writing a script to send commands to the drone.
- Lesson Two: Using the programming language Python students will write similar scripts to that of lesson one but manually type the commands rather than using prewritten code blocks.
- Lesson Three: Using Python students will write more complex scripts that utilize the Tello’s built in camera.

Impact and Outcomes
Implementing sUAS into classrooms with students developing their computer literacy skills is a great way to have students become more acquainted with an emerging new technology. UAS may further their understanding of how to utilize computers to accomplish various tasks in a new way.

Acknowledgements
Project was possible thanks to Jerry Hendrix, Director of UAS Research Programs, UAH Office of the President, Office of the Provost, Office of the Vice President for Research and Economic Development, The Dean of the College of Science, the Dean of the College of Engineering, the Alabama Louis Stokes Alliances for Minority Participation, and the Alabama Space Grant Consortium, and finally the Rotorcraft Systems Engineering and Simulation Center (RSESC)

References: