

Modular Drone Kit for STEM Education

Status:	Filled
Group Members:	MSE: Jasandeep Lidhar, Rai Gohalwar, Ataur Rehman BUS: Gunveer Chandi CMPT: Eric Lee
Sponsor(s):	Tech-E
Supervisor(s):	Amr Marzouk, PhD, PEng, Lecturer, Mechatronic Systems Engineering

Project Description

Technological advancements are constantly evolving the world, primarily as a consequence 75% of new jobs will require skills in STEM field. However the current rate of STEM graduates is not enough to fill market demand. Furthermore in the industry, the general consensus to increase STEM graduates is to involve the young students in challenging and creative projects which demonstrates the creativity and self-rewarding aspects of the STEM industry. We hope to contribute to the ongoing effort to increase STEM students by introducing a Modular Drone Kit designed to encourage the pursuit of the STEM careers.

Although there are several projects currently implemented in the BC curriculum and several high school extracurricular clubs that pursue STEM subject, primarily VEXX robotics, Lego EV3. We believe there is still space for projects which demonstrates the possibilities of STEM. In turn, using our cumulative experience in drone industry we would like to build a Modular Drone Kit designed to encourage STEM growth by providing interesting and challenging problems for the students to work. Evenmore, the Modular Drone Kit can be seen as an aviation parallel to the already implemented and award winning Lego EV3 Mindstorms. We hope to add another plane for the students to test their problem solving skills and explore their creativity. The actual controls.

Although there are several drone manufacturers, there is only one key player in modular drone industry; Airblock by Makeblock, however they primarily target beginner hobbyists and lack different modular setup ie no cameras, no IR sensor. Evenmore, they do not have the backend necessary for advance projects, i.e. drone automation. Furthermore, when highschool students

Deliverables:

Hardware : Working prototype of modular drone with a few useful attachments.

Software : Front end software to program the drone's configurations, accessories and tasks

Interface : Real time wireless communication to control the drone, monitor its sensors and other relative data