



Teaching Robotics Virtually to College Park Academy Students

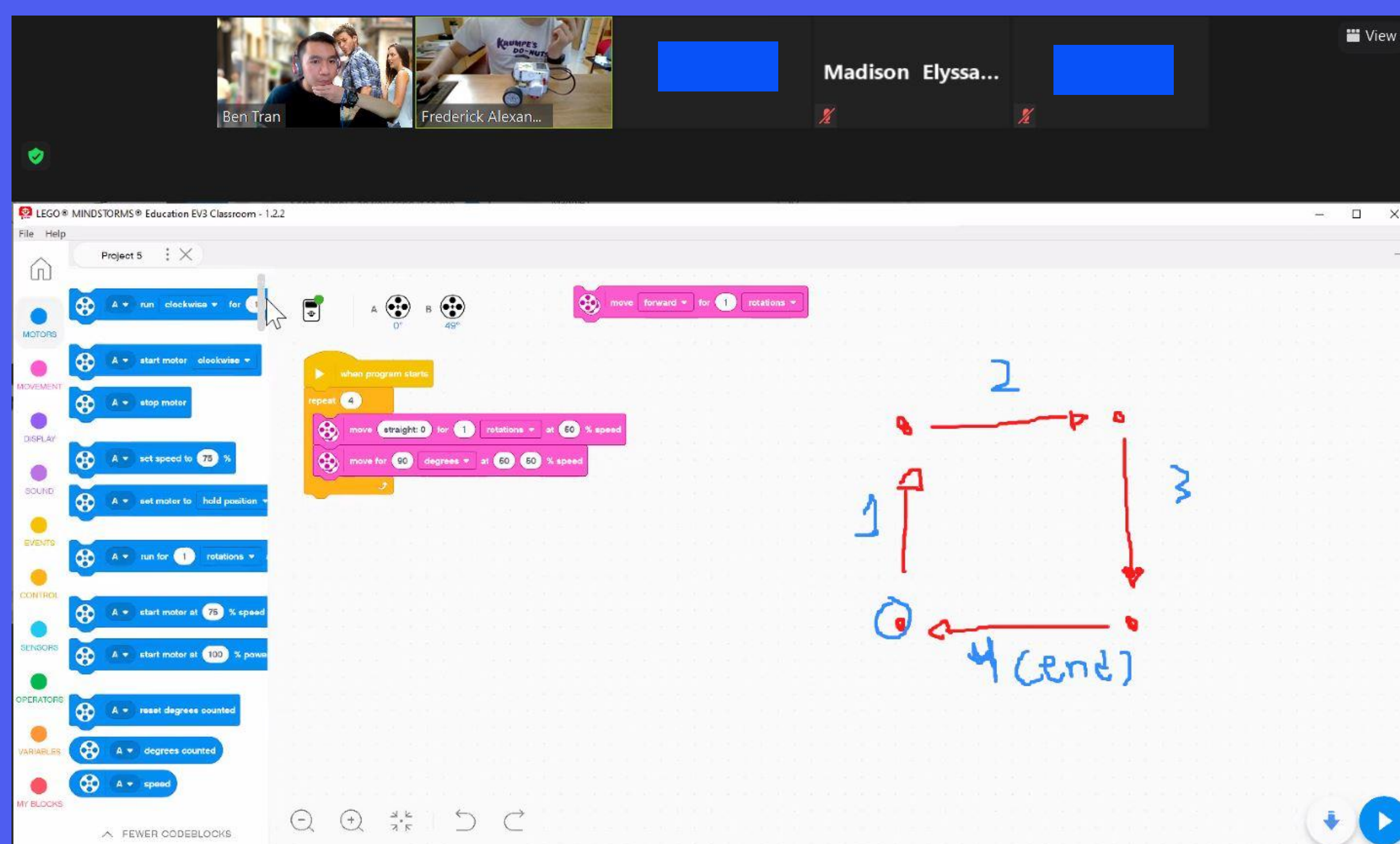


Ben Tran

College Park Scholars – Science & Global Change Program
Electrical Engineering
tran.sang.ben@gmail.com
College Park Scholars Academic Showcase, April 30, 2021

Introduction

For my practicum, I took CPSS240, a service-learning course with the Science, Technology and Society Program where college students were able to directly teach middle school students Lego Robotics over the span of a semester. Because of COVID-19, teaching was done online through Zoom every Thursday with a team of three college student-teachers and one student.



One of our coding teaching sessions with our student. In this particular session, we were talking through the process of maneuvering our robot in a square shape.

Activities:

- The college student-teachers were broken up into groups and assigned a middle schooler to teach during the semester. In our group, our grand challenge at the end of the semester was to navigate an obstacle course with our robot
- Before each robotics club meeting with our student, our small teaching group would create a lesson plan and PowerPoint based on our progress the week before. These plans were fine-tuned to accommodate our student
- Each week, we would meet with our student through Zoom. During the meetings, we taught our student about the fundamentals of robotics and the different capabilities of the robots' sensors using the Lego Robotics kits

Impact:

I learned a lot from my experience teaching a middle school student as well as from my experience teaching an online course. By setting goals in the form of robotics challenges each week for the course as well as establish a mentoring relationship with my student, I was able to make changes with how I taught based on the level of student engagement and understanding of the content I taught. I learned the importance of creating a welcoming and fun environment for my student as well as the difficulties of teaching someone younger. I hope that my efforts to make STEM interesting might positively influence and even inspire my student to looking into the field.

Site Information:

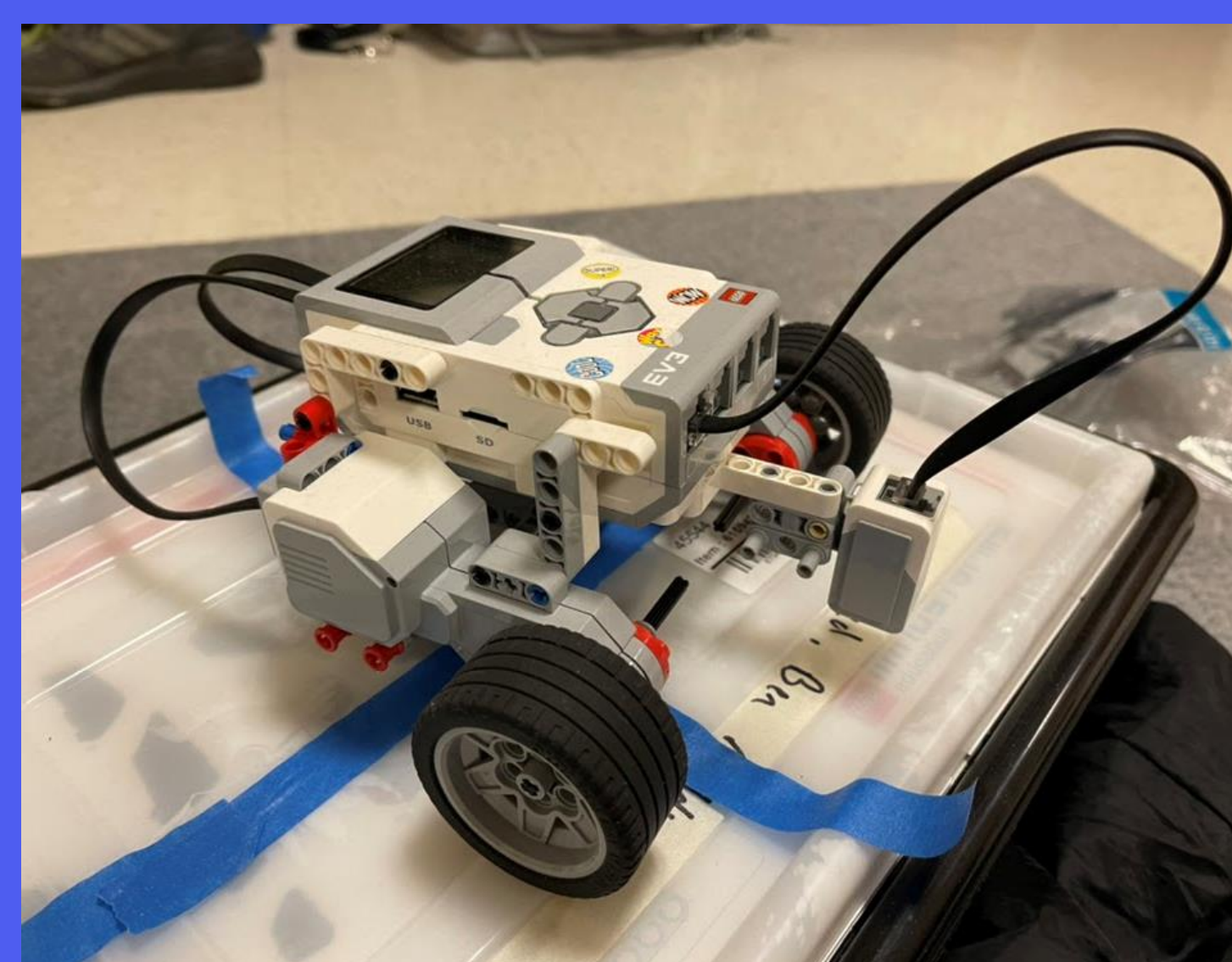
College Park Academy (Remote Teaching)
5751 Rivertech Ct, Riverdale, MD 20737
Supervisor: Dr. Timothy Reedy

Program Mission:

Teach students Lego Mindstorm Robotics in a dynamic and engaging way while developing problem solving, critical thinking, and programming skills

Issues Confronting Site:

As an online-teaching course, my primary objective was to teach robotics to my student who didn't have background in the subject but was interested in learning. Because of lack of prior knowledge, my team's experience with our student was different from other groups, and we took a slower, methodical approach to get our student used to the new concepts.



Our teaching team's prototype robot that we used throughout the course

Future Work:

This summer, I am looking forward to work as a near-peer mentor (NPM) in the 2021 Gains in the Education of Mathematics and Science (GEMS) program hosted by the Walter Reed Army Institute of Research (WRAIR). This opportunity will allow me to further develop the skills I learned from teaching in CPSS240, and I hope to utilize the mentoring skills during the course to effectively teach and actively engage students in a professional work environment.

Acknowledgments:

I would first like thank Prof. Timothy Reedy as the course teacher and as a supervisor for my teaching experience. He offered a lot of insightful feedback on how to properly teach an online course as well as helped me develop my teaching skills. Second, I would like to thank Brandon Young for directly mentoring me each week of the robotics club meetings. Lastly, I would like to thank Dr. Holtz and Dr. Merck for creating such an amazing experience for me in the Science and Global Change Scholars throughout my two years in the program.

