



CPSS 240: Contemporary Issues in STEM Education



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Introduction

For the practicum project, my group members and I had the opportunity to teach College Park Academy students virtually about robotics and how to program them to fulfill a grand challenge.



The Lego EV3 Robot we built for our students was the puppy robot seen above.

College Park Scholars Academic Showcase, April 30, 2021

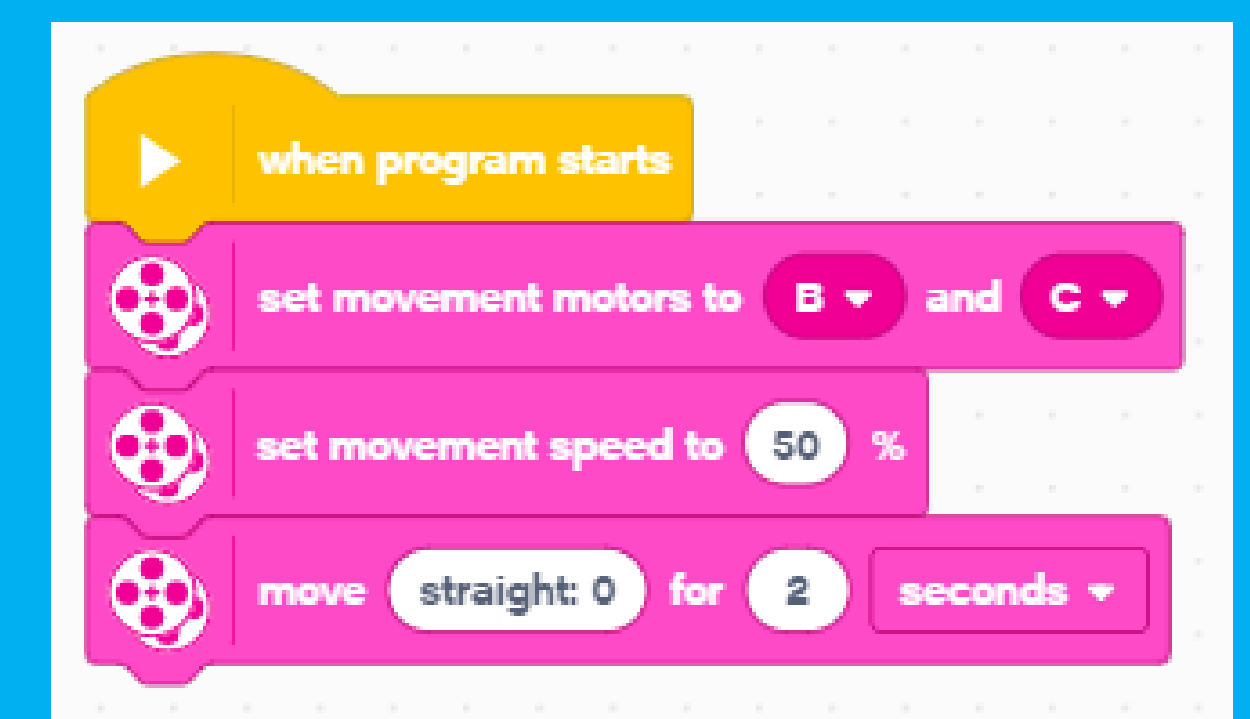
Discussion:

- There is an issue with minority representation in the US for STEM-related career paths. It could very well be a result of an education debt accumulated over the last hundreds of years.
- It's our responsibility to make the field more inclusive and diversified for all to work diligently to create a better world.

*"I am trying to encourage kids to do something that isn't yet on their mind because it is not in popular culture. Popular culture tells you 'music, music, sports, sports.' It neglects the importance of a STEM education."
- will.i.am*

Activities:

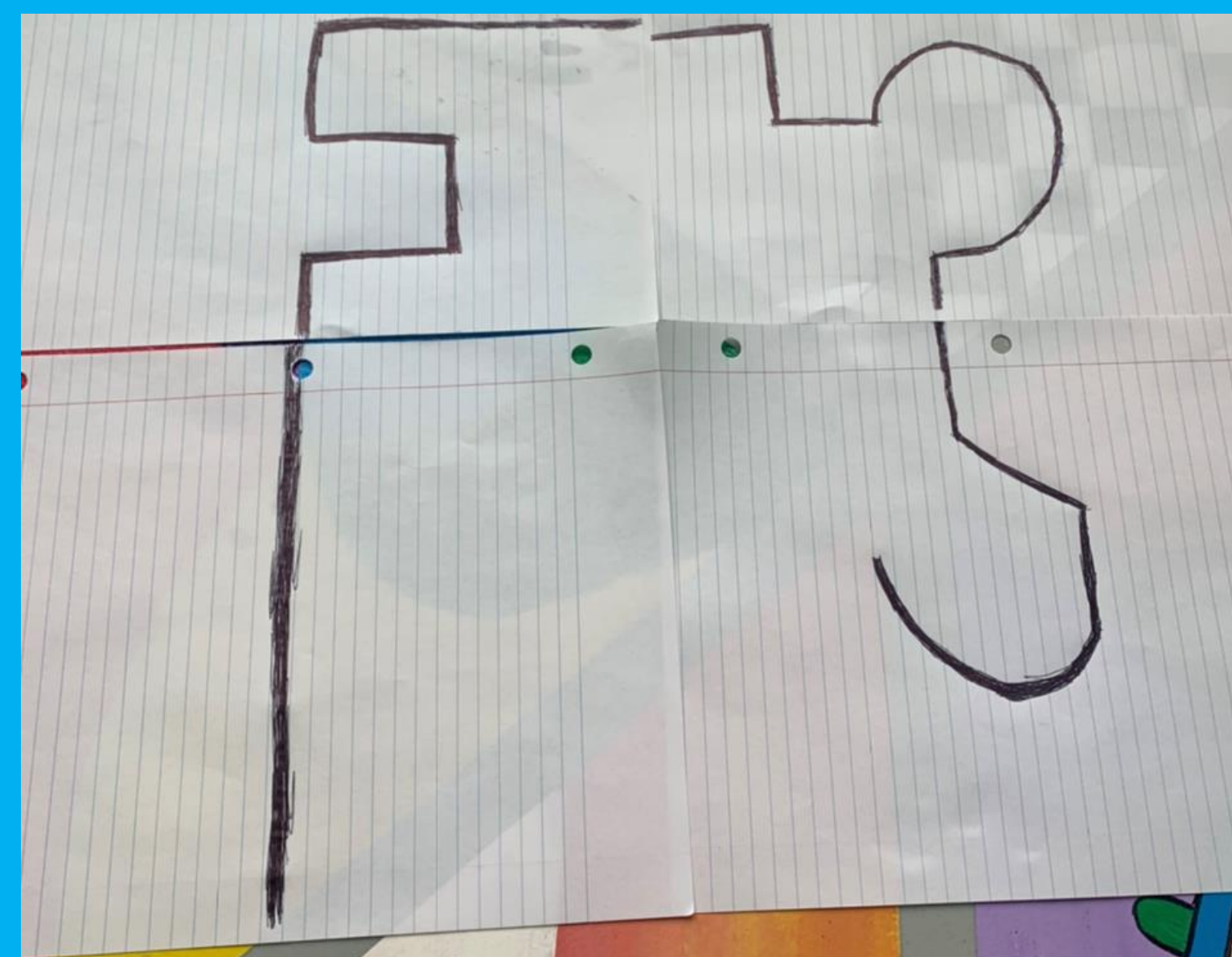
- The volunteers were designated to create lesson plans that will educate the students and to slowly prepare them over a semester.
- We started off with building robots from reading a manual, then we moved on to coding to control the different parts, then we created an obstacle course for the robot to complete.
- They got comfortable with the EV3 Lego Software and collaborating with each other to promote the ideas of STEM.



We taught our students how to program and code their finished puppy using the EV3 classroom computer program. They were taught to utilize a variety of sensors attached to the robot, mainly the color sensor.

Site Information:

- Name of Site: College Park Academy
- Address: 5751 Rivertech Ct, Riverdale, MD 20737
- Contact Information:
 - <https://collegetparkacademy.net/>
 - (240) 696-3206
- Your supervisor: Timothy Reedy
- Our mission was to develop, implement, reflect, and evaluate robotics using the Lego EV3 Mindstorm Kit. The primary goal was to introduce students into the STEM field of education and to show the different ways STEM can be applied in the real world.



For the grand challenge, we created an obstacle course that tested our student's ability to program the robot to respond to the line.

Impact:

- The College Park Academy consists of many students from different background, especially minorities.
- Our volunteer work will continue to breed passionate, curious students who will one day pursue STEM-related careers to benefit our society.
- Throughout my experience teaching robotics to my students, I gained a new perspective on the importance of STEM education for the youth. Many kids are interested in the prospect of science and engineering but are later deterred in later years when the classes get tough.
- The importance of providing a solid foundation for these students is unquestioned as they will be trusted to become leaders of society. We must do our best to continue to pique their interest through proper education to all kids.

Issues Confronting Site:

- Our site was confronting contemporary issues in STEM education.
- Minorities are underrepresented in the STEM work field and a main reason is because of how education is delivered in grades K-12.
- We aim to examine the whys and in what ways can we accommodate for the future to continue to run the wheels of STEM.

Future Work:

- We were able to work with passionate students that will make a difference in the world.
- Hopefully, we will be able to entice the future generation into taking a step towards STEM as the numbers continue to dwindle and the interest for natural sciences and engineering decline.
- Perhaps we can address the underrepresented minorities in the STEM field and allow for an inclusive, fruitful field for young creative minds, no matter their background.

Acknowledgments:

- I would like to thank Timothy Reedy and Mika Elby for mentoring us volunteers and giving us an opportunity to make a difference in the community.
- I would like to thank College Park Scholars, Science and Global Change Program and University of Maryland for allowing students to make a difference and to gain perspective on the growing world.
- Finally, I would like to thank my Scholars Program leaders Dr. Holtz and Dr. Merck for teaching us SGC students the important values of discovery and curiosity from our colloquiums.

