Teaching LEGO Robotics at MLK Middle School

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Introduction

As part of my practicum service project, I had the opportunity to volunteer at Martin Luther King Jr. Middle school which is part of the Prince George's Public School system.

Site Information

Site: Martin Luther King Jr. Middle School

Address: 4545 Ammendale Rd, Beltsville, MD 20705

Site Supervisor: Timothy Reedy

The mission at this site was for us volunteers to teach students about the fundamentals of robotics and to pique their interest in the matter. The goal of the site was to enhance the STEM education students at this school were receiving.

Issues Confronting Site

In the beginning of our volunteer service at MLK, we had a few difficulties with getting the full attention of the students. The students in my group were not very interested in the project in the beginning as they felt it as more of an obligation than a fun and enriching learning experience. However, after we gained the trust of the students and taught them more about LEGO robotics, they became extremely excited to participate.

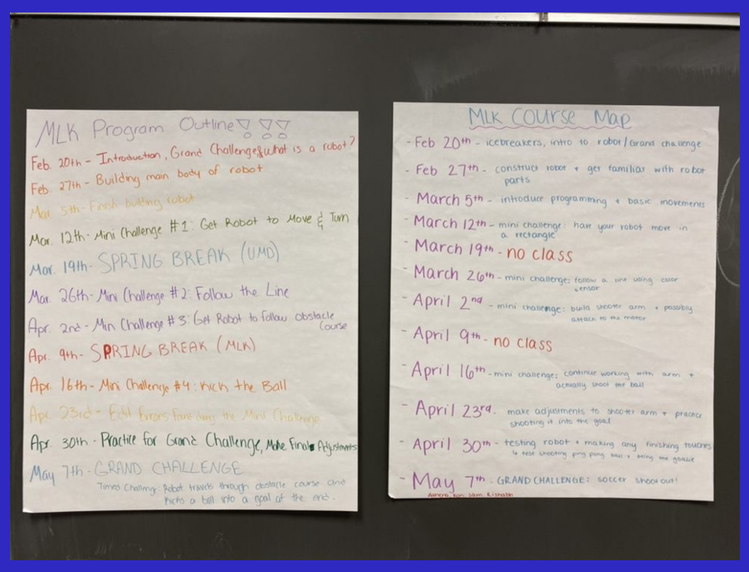
Impact

Martin Luther King Jr Middle school is one of the many schools in Prince George's county where most of its students are African-American or Latino and/or come from a lower income background. I hope that by introducing and teaching the LEGO robotics program to these students that they will be able to realize that no matter where they come from, they too deserve a great STEM education. Also, I hope that this experience gave them insight into the endless possibilities that exist in STEM.

Discussion

In the United States, there are very few people of minority backgrounds in STEM fields as compared to white Americans. This could be due to low funding for schools with majority minority students or the already established fact that there is little racial representation in those fields. Either way, it is important that we aim at spreading STEM education to minority children so that we can create more diversity in these fields and develop more representation.

Activities

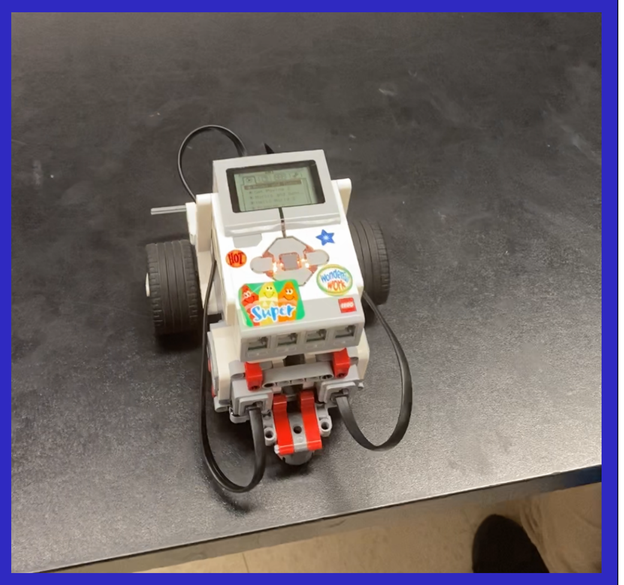


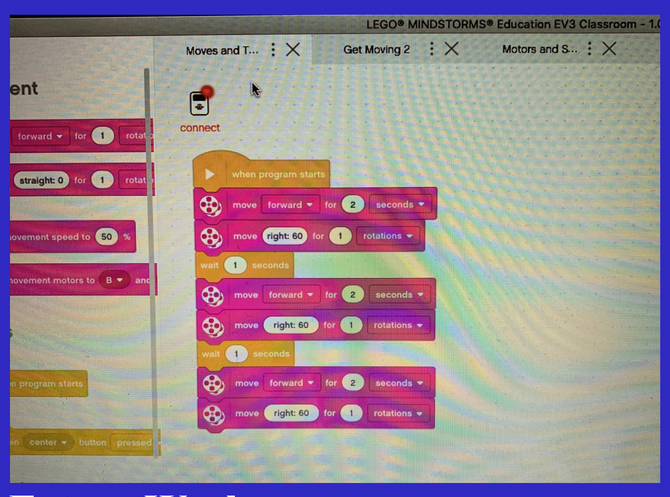
Us volunteers were able to create lesson plans on a weekly basis in our school teams for the students. The main goals we wanted to accomplish were to fully assemble the robots, teach the basic commands on the EV3 LEGO software, and ignite their interest in STEM.

Pictured left: Our very first outline to guide our future lesson plans

Each of us were assigned a team of 4 students to assist them with building a LEGO robot for their team. The robots were able to detect color, sound, and even touch by using various sensors. They could rotate at various angles and travel for any time set on the program.

Pictured right: Finished model of the robot we used





We also guided students to develop their own codes for the LEGO robot on the EV3 classroom computer program.

Pictured left: My team's most used code to fulfill our first few "mini challenges"

Future Work

One of the best parts of this opportunity was being able to inspire the students with a new facet of STEM they had never worked with. They were also able to work on their problem-solving skills as working with technology isn't always a smooth process. Even when there was a miscommunication between the computer program and the robot, the students were able to rework the issue and get things back on track all on their own. I learned that students of all age-levels and backgrounds have the potential to succeed in any new subject area if they have a strong community to support them.

Acknowledgments

I'd like to thank my Scholars program leaders Dr. Thomas Holtz and Dr. John Merck for always instilling the values of discovery and determination into all our colloquium discussions. I am also thankful for the entire Scholars program staff for making us students get out of our comfort zones and helping us make meaningful connections. Lastly, I'd like to thank Professor Tim Reedy for teaching us new perspectives on education and the world around us.