



Eagle Scout Celebration Week | February 21-27, 2021
Eagle Scout Service Project Description
Walter Rahmer

My Eagle Scout Project came in two parts: a one day, hands on workshop to teach middle school students in southern Tucson about robotics, and an accompanying video production for the beneficiary organization, Billy Lane Lauffer Middle School in Littleton, to teach with. Students in southern Tucson typically come from disadvantaged backgrounds, where advanced topics such as computer programming and robotics may be educationally out of reach.

Students were invited through the beneficiary organization and through word-of-mouth invitations. Each participating student was loaned an educational robot for use during the program, as well as operating instructions and worksheets for the event. The workshop took place over Google Meet on September 19, 2020, after a few delays. Four of my friends acted as teachers, each covering a distinct topic in their sections: Programming loops, If else statements, motors and movement, and electronic lighting. The students rotated between the sections every forty minutes, so that each student could experience all the material. At the end of the session, each student was given time to write their own code for their robot to display and show it off to the group in a talent show. Despite some issues, both technical and organizational, each student indicated at the end of the event that they had fun and had learned much about the subject matter.

After the main educational event, each of the four teachers were given instruction about how to create their videos. They were to cover the same topic they covered in the event, only addressed to the camera instead of the students in their Google Meet rooms. As the videos arrived, they were sent to my roommate, a film and TV major at the University of Arizona, to edit and improve. Each of the videos had a multitude of edits, from basic color correction and trimming, to the addition of stock images and





animations, to even some handmade animations. After almost a month of work, the finished videos, as well as the worksheets and teacher directions from the online seminar, were handed over to the beneficiary in mid-October.

Due to the unfortunate timing of this project, having been approved at the end of 2019 and originally scheduled for May 2020, problems were encountered at every turn. The project was originally proposed as an in-person workshop, where robots could be shared between students and school facilities would be used. However, the pandemic quickly slashed these ideas, as this project would have become a super spreader event for the virus. The date had to be pushed back into the next school year to allow for planning to begin from the ground up over the summer. The project was moved online, the available spots were reduced from 24 to only 8, and accommodations had to be made to support the online nature of the project. Once the planning had finished and the project finally began gaining momentum again, low signups among the students at the beneficiary location led to a two-week delay in the planned event date. When the date of the workshop finally rolled around, it was found that the beneficiary's IT system had blocked the needed plugin for the robots from working on the student's school provided computers. Those students without an alternative could not participate in the hands-on section on the official day, so a makeup day had to be scheduled after frantic emails to the IT department. On the day of the planned makeup session, an enormous internet outage covering one student's home caused another pushback. Finally, one week and one day after the original session, the makeup session succeeded, though it was conducted over the phone due to a poor internet connection.

In my position as leader of this project, I produced the base materials, from the teacher's guides to the student worksheets and the operating guides to the robots used, as well as the robots themselves. On the day of the event, I opened and closed the workshop, and directed students between rooms, but left the teaching of all the material to my volunteers, save for one moment where I had to step in for one of my teachers





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while she got dinner. The event was conducted in the afternoon in Tucson, but she was teaching from Connecticut, where it was already evening.

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