

Team Vulkan

University of Hawaii at Hilo

NASA Swarmathon

Outreach Report

Advisor: Marc Roberts

Student Team Members:

William Barden

Alec Goodson

Introduction:

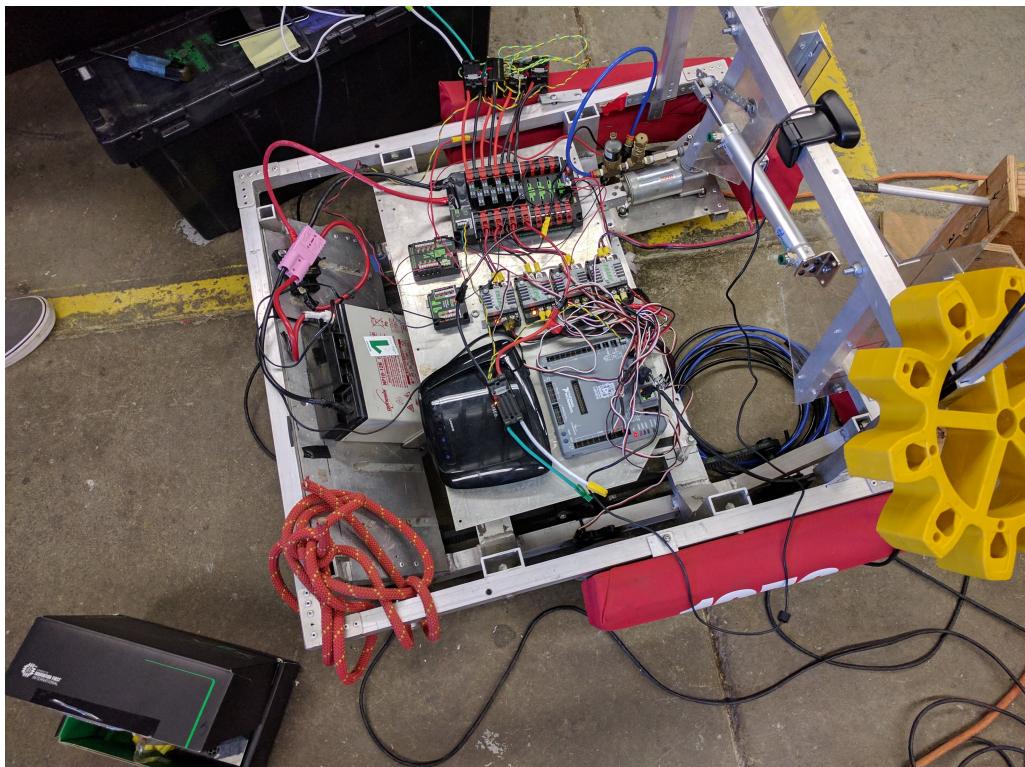
The university of Hawaii at Hilo is the most diverse campus in the nation, and we are a minority serving institution. However, science education in Hawaii is lacking in several fields. For Team Vulkan's outreach, we lent our support to the Hilo High School's Viking Robotics team. The Hilo High Vikings Robotics team is comprised of a small diverse group of dedicated, intelligent young men and women, and we made it our goal to further enable them in their goals to compete in future NASA competitions. We coordinated with their team and when possible, provided material support, guidance, and assistance in troubleshooting hardware. The pictures included below detail one such visit to this wonderful group of dedicated students.

Since our University of Hawaii Hilo Vulkans team was composed simply of our advisor and two students (after several others dropped out), William Barden and Alec Goodson, our ability to perform and implement complex and intricate outreach programs was greatly hampered. Thus, our outreach effort included practical benefits for both ourselves and for the Hilo High School Viking robotics team.

Since our primary goal this year was to lay the foundation for future University of Hawaii Vulkan Robotics Teams to perform in future NASA Swarmathon competitions, we needed to be able to

work with
the
equipment
for the
robots. The
Hilo High
School was
competing
in their first
robotics
competition,
so we lent a
helping
hand.

Their team
had a cam
bus that is
used to
program
their VEX
Talon motor controller.

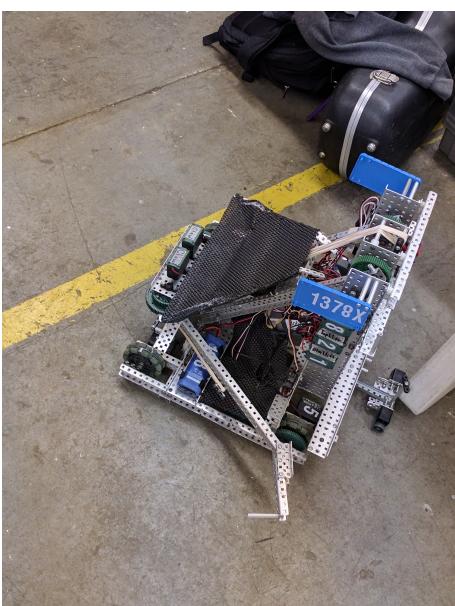


However, they did not know how to use it to do so. The University of Hawaii Vulkan Robotics team is using the same motor controllers, and in studying the documentation for how to program our controllers, we learned how to use their cam bus.



Here, the Hilo High team troubleshoots connections on their cam bus while preparing to begin programming their motor controllers.

Thus, the Vulkan team used the Viking team's cam bus to reprogram our motor controllers, and use this as a demonstration and test before reprogramming and setting IDs for the Hilo High team's controllers.



The Hilo High team is composed of a young and diverse group of science enthusiasts. While visiting their team's workshop on campus, we not only assisted in troubleshooting their hardware issues, we also spoke to them in casual conversation, learning about their interests and passions

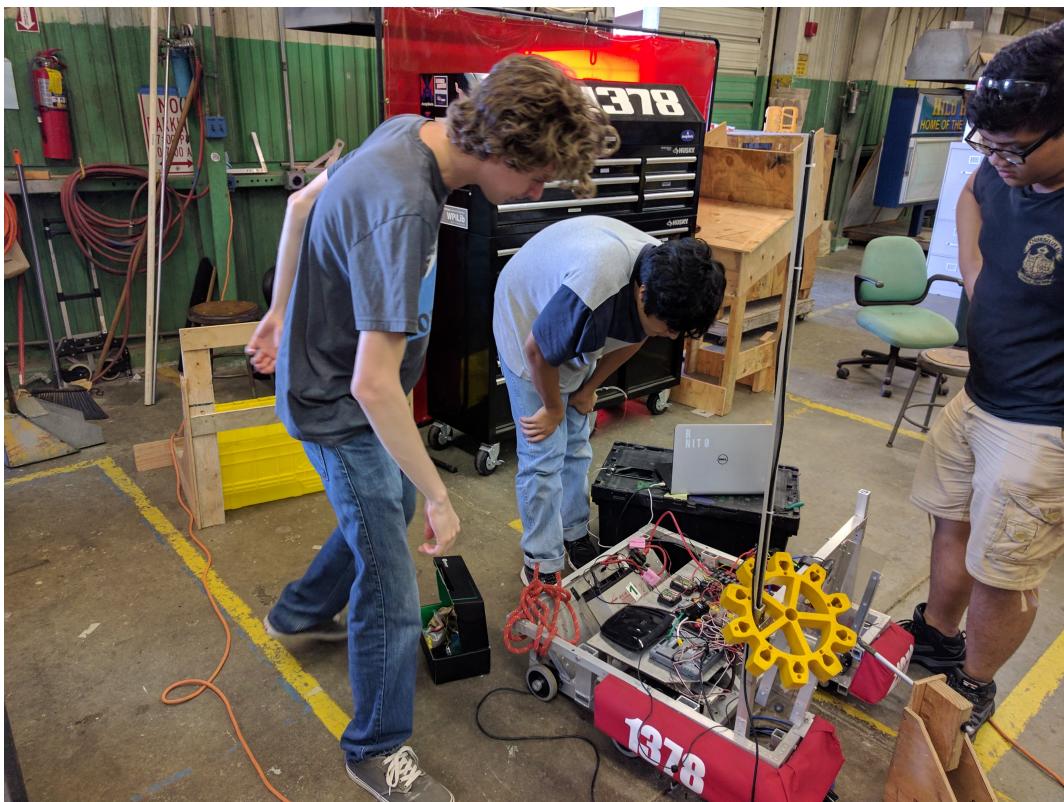
One of the core beliefs of any Vulkan at UH Hilo is that one should never stop striving to learn more and constantly improve. Every year, we want to make a robot that works harder, performs better, runs faster, and is stronger than the previous year's. As such, we worked to instill these same values in the young engineers we were working with.



Overall, our goal was not to do anything for the Hilo High students other than to facilitate their own ingenuity, of which they possess copious amounts. In the above picture, Vulkan Team member Will Barden (right) assists Viking Team member in freeing a particularly stuck bolt from a circuit array.



Our advisor is a bit of a robotics nut, and here is the screw!



The Viking Robotic team here is preparing to begin flashing the firmware on their motor controllers. Working as a team, they were able to troubleshoot connections and turn previously dead hardware into the primary components of a future

winning robot.

Here, we can see a few Viking Team members bring briefed by one of their leads (second from left), while Vulkan team member Will Barden (center) listens. Once we showed them how the flashing process was done, using Team Vulkan's motor controllers as guinea pigs, Viking Team took the lead, with Vulkan Team members providing support in the form of troubleshooting advice, and the occasional extra hand to secure a poor connection. Our two teams will continue to work together in the future, and we fully expect future Vulkans to be former Vikings.

