Curriculum to Use the Sphero RVR in IT-Adventures

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Client: IT-Adventures

Presentation Timeline

- Project Review
- Current State & Completion Status
  - Robotics
  - Smart-IT
- Technical Challenges
  - Robotics
  - Smart-IT
- Conclusion

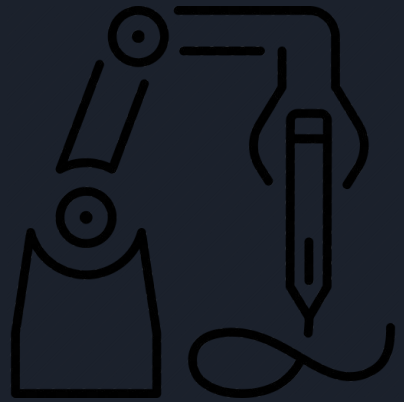
Project Review

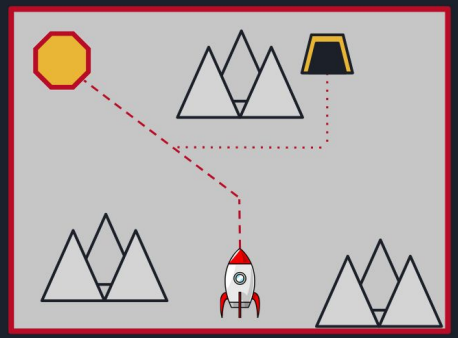
With our task of updating the IT-Adventures curriculum to use the Sphero RVR, great strides have been made since the last PIRM.

- The curriculum for the fall semester is complete in both programs!
- The springtime challenges are being designed, and should be primarily wrapped up within the next few weeks

Current Goals and Progress - Robotics

- All lessons have been created and published, finishing the primary portion of the project
- The final challenge has been decided upon, yet still has some portions to complete
- Finally, the small challenges for the spring practices need to be converted

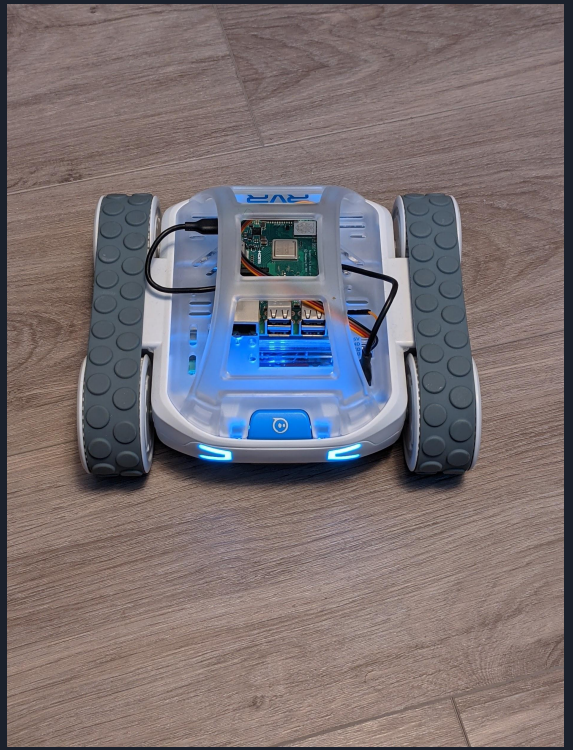




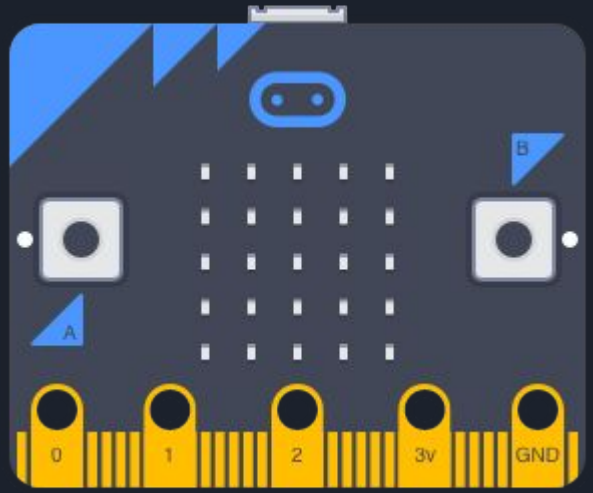
The small challenges are a series of practices for the final competition in April, where students are presented with a never-before-seen challenge that they must address.

Current Goals and Progress - SmartIT

- All of our lessons have been written, finalized, and published, ending the lion's share of the work.
- The final project has not been decided yet as we are working through all of the technical capabilities of the RVR and Pi.
- We will be preparing additional practice challenges to prepare the for the final challenge.
- Feedback will be passed through to us from the teachers through IT-Adventures and we'll make the appropriate changes



Technical Challenges - Robotics

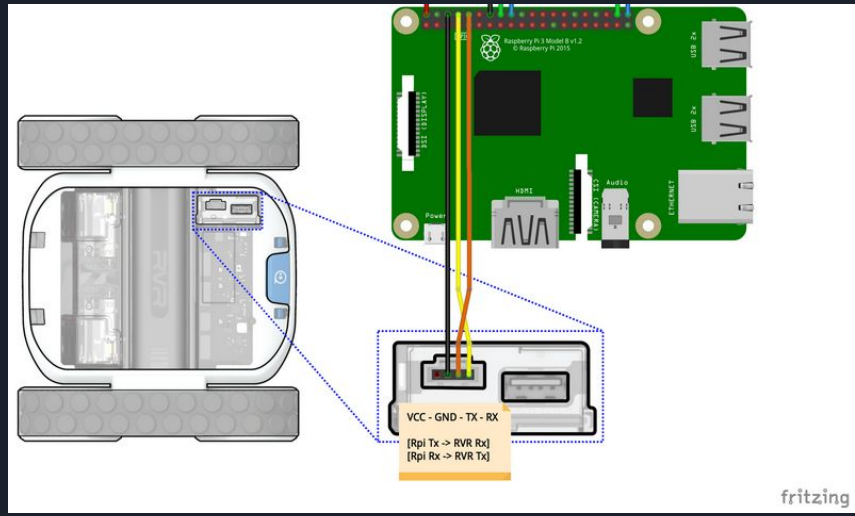


Final Project

- Requires use of multiple sensors and preferably multiple teams
- Limited SDK for micro:bit is greatly limiting native RVR capabilities
- Requires a cheap, durable field that teams can make to practice with (*without* requiring another team to practice against as well)
  - ➢ Considering common materials, such as tables, PVC pipes, etc

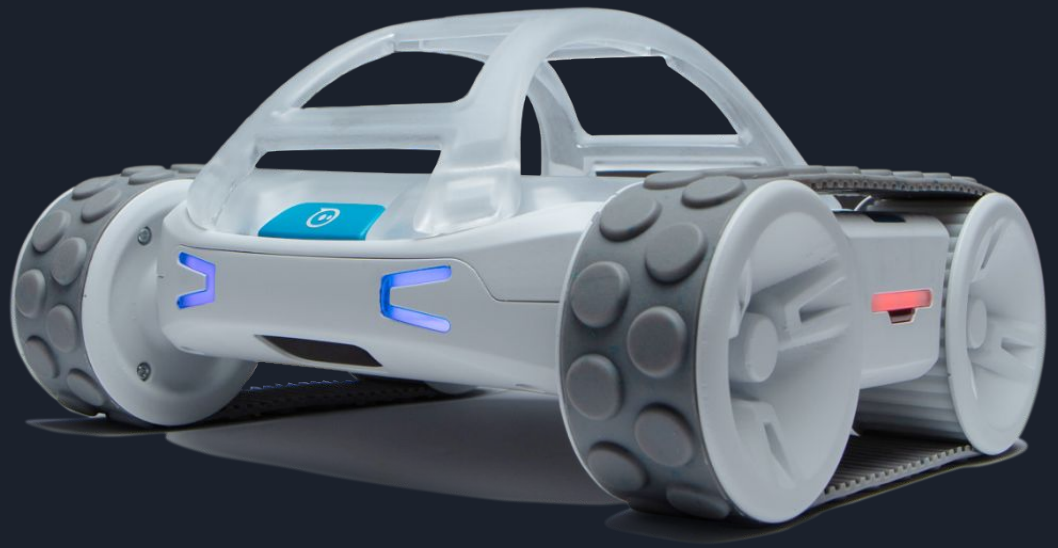
Technical Challenges - SmartIT

1. Raspberry Pi to Sphero RVR communication
    a. Advanced operations from RVR to Pi
        i. Interrupts
            1. Color Sensor
            2. Infrared sensor
2. Finalize spring curriculum & competition challenge
    a. Implement January-March curriculum
        i. Continue learning and developing with Python
        ii. Python lessons will primarily focus on RVR code
    b. Develop final competition challenge
        i. 2-3hr to complete program for challenge
        ii. Must implement what we have learned
        iii. Highest demonstration of skill (not luck) wins



Conclusion

Again, the teams are both done with the curriculum sets for the fall. These should be able to serve IT-Adventures for the next several years. The teams are both looking ahead towards the final challenges, and are excited for what is to come!



Thank you for listening!

Questions, Concerns, or Comments?