

- 1. Import the “microbit-robot.hex” and “microbit-remote.hex” and observe how the remote sends commands to the robot, and how the robot responds to the commands in order to move.
- 2. Load the “microbit-remote.hex” file onto the Micro:bit with the attached battery pack. Load the “microbit-robot.hex” file onto the Micro:bit with the “R” sticker on front. Place the Micro:bit into the Motobot on your robot.
- 3. Test your robot on one of the courses and make any changes to the controls that are necessary to get it working correctly.
- 4. Explain to an instructor what happened while testing your robot:
  - Was your robot able to receive every command you sent?
  - Was anything interfering with your robot’s movement?
  - Explain how you plan on increasing the availability and integrity of your system.
- 5. Implement the change(s) you came up with and described in Part 4 to increase the availability and integrity of your system.
- 6. Once more, test your robot on one of the courses; did you receive any interference? If so, revisit Part 5 and further increase the security of your system.
- 7. Begin thinking about how you might compromise the availability or integrity of a competing robot. Make a list of things you’d like to try in order to attack competing robots.
- 8. Explain to an instructor what changes you made to your system in order to increase its integrity and availability. Explain your thoughts and plan on attacking competing robots.
- 9. Using another Micro:bit, use the plan you developed in Parts 7 and 8 to build a program that can be used to attack competing robots.
- 10. Make any final changes to your system to increase its security. Race against several different opponents while simultaneously attempting to disrupt their robot.
- 11. Record some thoughts in your notebook:
  - Were you able to successfully defend your robot against your adversaries?
  - What aspect of your system is the strongest? The weakest? Give yourself a grade from 1-10 on your system’s availability and integrity.
  - Develop a plan to further increase your system’s abilities.
  - If you were able to successfully attack an adversary, which aspect of their system did you attack? The integrity of the system? The availability?
- 12. Explain to an instructor some of your observations. Explain the measures you took today in order to increase the availability and integrity of your own system, as well as the measures you took in order to compromise a competitor.

