piRover Builds with K2

Build Validation – Part 2 Rev 1.0

Overview:

During this activity you will continue to validate your piRover build by testing the Line Follower, Servo-Sonar-LED, and Camera assemblies. You will connect to your iPhone or Android device via a Bluetooth connection as done in Part 1, but this time use the Mode selection to test with other Yahboom applications. Document procedure, results, and observations in the form provided.

Resources:

1. piRover – completed with OS installed
2. iPhone or Android mobile phone. (Note: Contact the instructor if you do not have a mobile phone available for testing.)
3. App download
4. K2 Build Validation Videos – see links on Moodle

Task:

1. Open the Yahboom Tank application on your mobile device, boot your piRover, and make the Bluetooth connection. See the Part 1 document and the Build Validation Overview video for specific instruction.
2. View the **piRover Build Validation – Line Follower** video for instructions on how to calibrate and test the line follower. The link to this video is provided on the Moodle page.
3. In the space below, describe the expected behavior of the Line Follower and associated Yahboom software.

4. Complete the calibration of the Line Follower sensor as presented in the first section of the video. Use the space provided below to outline the calibration procedure that you used.

5. Were you able to calibrate the line follower as demonstrated in the video? Record any issues or challenges in the space below.

6. Run the line follower utility provided in the Yahboom mobile application. Record your test results below. Did the rover behave as you specified in item 3 above? Did the test pass? Record any issues or concerns based on this test.

7. View the **piRover Build Validation – Servo LEDs** video for instruction on testing the front servo and LEDs.
8. In the space below, describe the expected behavior of the servo and LEDS when the "Colorful Search" option of the Yahboom application is executed.

9. Run the Colorful Search utility. Record your test results below. Did the rover behave as you specified above? Did this validation test pass? Record any issues or concerns based on this test.

10. View the **piRover Build Validation – Sonar Tracking** video for instructions on testing the sonar ping sensor and direction control.
11. In the space below, describe the expected behavior of the servo and LEDS when the "Obstacle" option of the Yahboom application is executed.

12. Run the Obstacle utility. Record your test results below. Did the rover behave as you specified above? Did this validation test pass? Record any issues or concerns based on this test.

13. View the **piRover Build Validation – Camera** video for instruction on testing the camera and gimbal.
14. What two connections are required between the mobile device and the piRover for this test? Identify the piRover function supported by each of the connections.

15. Run the camera utility. Record your test results below. Did the rover behave as you specified above? Did this validation test pass? Record any issues or concerns based on this test.

Submit your completed assignment to the Moodle site. The class will discuss results and responses during the next class session.