Grading Rubric Lab 2 Worksheet - Collecting Data (24 Points)

See the grading requirements at the end of the instructions in the Lab Manual for details on how you will be graded.

Part 1: Collecting Deceleration Data

1. Insert a graph of the accelerometer data showing when the iOLab device was pushed and slowing down. Be sure it is zoomed in. Use the data tool to highlight the portion where the device is slowing down. Only the y-axis should be displayed.

3 Points - ALL of the following are true: (1) a professional looking screenshot is included, (2) the graph is zoomed in to show all the details, (3) the data tool highlights only the portion where the device is slowing down.
2 Points - Only TWO of the following are true: (1) a professional looking screenshot is included, (2) the graph is zoomed in to show all the details, (3) the data tool highlights only the portion where the device is slowing down.
1 Point - Only ONE of the following is true: (1) a professional looking screenshot is included, (2) the graph is zoomed in to show all the details, (3) the data tool highlights only the portion where the device is slowing down.
0 Points - A screenshot is not included OR the screenshot is taken of the computer screen with a phone camera or similar.

2. Record your accelerometer data in the form of mean ± standard error of the mean.

2 Points - BOTH of the following are true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.
1 Point - Only ONE of the following is true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.
0 Points - NEITHER of the following is true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.

3. Record your wheel sensor acceleration data in the form of mean ± standard error of the mean.

2 Points - BOTH of the following are true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.
1 Point - Only ONE of the following is true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.
0 Points - NEITHER of the following is true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.

4. Compare the accelerometer and wheel sensor data. Which one do you think is more accurate? Why?

3 Points - ALL of the following are true: (1) the accelerometer and wheel sensor data are effectively compared, (2) a statement is made regarding which sensor is believed to be more accurate, (3) there is a reasonable explanation of why one sensor is better.
2 Points - Only TWO of the following are true: (1) the accelerometer and wheel sensor data are effectively compared, (2) a statement is made regarding which sensor is believed to be more accurate, (3) there is a reasonable explanation of why one sensor is better.
1 Point - Only ONE of the following is true: (1) the accelerometer and wheel sensor data are effectively compared, (2) a statement is made regarding which sensor is believed to be more accurate, (3) there is a reasonable explanation of why one sensor is better.
0 Points - No attempt was made to compare the data.

Part 2: Collecting Data at Rest and Falling

5. Record the average acceleration from the accelerometer sensor while the iOLab device is at rest.

2 Points - BOTH of the following are true: (1) the average acceleration is recorded, (2) appropriate units are used.
1 Point - Only ONE of the following is true: (1) the average acceleration is recorded, (2) appropriate units are used.
0 Points - NEITHER of the following is true: (1) the average acceleration is recorded, (2) appropriate units are used.

6. What did you think it would read? Why?

2 Points - BOTH of the following are true: (1) there is a statement of what the student thought the sensor would read, (2) there is an explanation of why the student thinks this.
1 Point - Only ONE of the following is true: (1) there is a statement of what the student thought the sensor would read, (2) there is an explanation of why the student thinks this.
0 Points - No attempt was made.

7. Insert a screenshot of your accelerometer graph while it is in falling. Be sure it is zoomed in. Highlight the portion when the device is falling. Only the z-axis should be displayed.

3 Points - ALL of the following are true: (1) a professional looking screenshot is included, (2) the graph is zoomed in to show all the details, (3) the data tool highlights only the portion where the device is falling.
2 Points - Only TWO of the following are true: (1) a professional looking screenshot is included, (2) the graph is zoomed in to show all the details, (3) the data tool highlights only the portion where the device is falling.
1 Point - Only ONE of the following is true: (1) a professional looking screenshot is included, (2) the graph is zoomed in to show all the details, (3) the data tool highlights only the portion where the device is falling.
0 Points - A screenshot is not included OR the screenshot is taken of the computer screen with a phone camera or similar.

8. Record the average acceleration from the accelerometer sensor while the iOLab device was falling.

2 Points - BOTH of the following are true: (1) the average acceleration is recorded, (2) appropriate units are used.
1 Point - Only ONE of the following is true: (1) the average acceleration is recorded, (2) appropriate units are used.
0 Points - NEITHER of the following is true: (1) the average acceleration is recorded, (2) appropriate units are used.

9. What did you think it would read? Why?

2 Points - BOTH of the following are true: (1) there is a statement of what the student thought the sensor would read, (2) there is an explanation of why the student thinks this.
1 Point - Only ONE of the following is true: (1) there is a statement of what the student thought the sensor would read, (2) there is an explanation of why the student thinks this.
0 Points - No attempt was made.

Part 3: Noise

10. Insert a screenshot of your Normal Distribution.

3 Points - ALL of the following are true: (1) a bell curve of the normal distribution is present, (2) a scatter type plot is used, (3) the bell curve has two tails at 0 on the y-axis.
2 Points - Only TWO of the following are true: (1) a bell curve of the normal distribution is present, (2) a scatter type plot is used, (3) the bell curve has two tails at 0 on the y-axis.
1 Point - Only ONE of the following is true: (1) a bell curve of the normal distribution is present, (2) a scatter type plot is used, (3) the bell curve has two tails at 0 on the y-axis.

0 Points - No attempt was made to make a normal distribution.