Rotary Encoders & Human-Computer Interaction — Results and Analysis Worksheet

1. In your experimentation with the LEGO rotary encoder, did your predicted angles match up with the computer angles? Do you think the numbers should match up? Explain.

____________________________________________________________________

____________________________________________________________________

2. After graphing pixels vs. length from your experiments, what is the relation between the amount of pixels moved on the screen for a given length traveled on paper?

____________________________________________________________________

3. Explain what a rotary encoder is.

____________________________________________________________________

____________________________________________________________________

4. List some examples of devices that have rotary encoders:

____________________________________________________________________

5. Briefly explain how a rotary encoder works.

____________________________________________________________________

____________________________________________________________________

6. Did the robotics (LEGO EV3) setup help you better understand a rotary encoder? Explain your answer.

____________________________________________________________________

____________________________________________________________________

7. How familiar are you with the topic of angles, after this activity? Rate from 1 (not familiar) to 10 (very familiar) _______________
8. What do you think is the angle shown in each picture? (Write the answer in degrees)

<table>
<thead>
<tr>
<th>Diagram</th>
<th>Angle (in degrees)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram 1" /></td>
<td>?</td>
</tr>
<tr>
<td><img src="image2.png" alt="Diagram 2" /></td>
<td>?</td>
</tr>
</tbody>
</table>

9. Would the rotary encoder work for any other shapes, such as a square?

________________________________________________________________________

________________________________________________________________________

10. How do you think rotary encoders are applied in elevators and fans? (Hint: Rotary encoders were used to relate rotation to distance in the computer mouse and rotation to angles in the LEGO device.)

________________________________________________________________________

________________________________________________________________________