ENGR 101: Robotics
Lecture 1 – Introduction

• Outline
  - The Scribbler’s Sensors
  - Demo Modes
  - Graphical Programming

• References
  - http://csserver.evansville.edu/~richardson/
    • GUI Programming Guide: Setting Up
    • GUI Programming Guide: First Programs

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Lecture 1 – Introduction Demo Modes

Cover zero, one, two or three of the light sensors as shown in the table on the following slides to put the Scribbler into one of eight demo modes.

Turn the Scribbler on, cover the light sensors with your fingers and then press the reset button. Wait for a beep and then uncover the light sensors.

L, C, and R refer to the left, center and right (as seen from the drivers seat of the robot) light sensors respectively. A ● indicates that a finger should be used to cover the sensor during reset. A ○ means that the sensor should be left uncovered.

Lecture 1 – Introduction Demo Modes

<table>
<thead>
<tr>
<th>L</th>
<th>C</th>
<th>R</th>
<th>Demo Mode Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>○</td>
<td>○</td>
<td>○</td>
<td>Mode 0 (Light Sensing) – Covering a light sensor causes the corresponding LED to go out. (The Scribbler does not move in this mode.)</td>
</tr>
<tr>
<td>○</td>
<td>○</td>
<td>●</td>
<td>Mode 1 (Light Detection) – The Scribbler will move toward the brightest light in the room (or follow a flashlight around).</td>
</tr>
<tr>
<td>●</td>
<td>○</td>
<td>○</td>
<td>Mode 2 (Object Sensing) – The Scribbler will play different tones depending on whether it detects on object to the right or to the left. (The Scribbler does not move in this mode.)</td>
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Lecture 1 – Introduction Demo Modes

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<tr>
<td>●</td>
<td>●</td>
<td>●</td>
<td>Mode 3 (Object Avoidance) – The will move around the room turning to avoid any objects in its path.</td>
</tr>
<tr>
<td>○</td>
<td>○</td>
<td>○</td>
<td>Mode 4 (Line Sensing) – The right LED will light if the right sensor sees the line. If the left sensor sees the line, the left LED will light. (The Scribbler does not move in this mode.)</td>
</tr>
<tr>
<td>●</td>
<td>●</td>
<td>●</td>
<td>Mode 5 (Line Following) – The Scribbler will follow a black line (track) drawn on white paper.</td>
</tr>
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Lecture 1 – Introduction
Demo Modes

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<tr>
<td>6</td>
<td>Scribble – The Scribbler will draw a figure 8 and then beep. Pick up the Scribbler and set it down again and it will draw a box.</td>
</tr>
<tr>
<td>7</td>
<td>Ambulance – The Scribbler drives around avoiding obstacles while blaring a siren and flashing lights.</td>
</tr>
</tbody>
</table>

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Lecture 1 – Introduction
Graphical Programming

First Programs
1) Turn center LED on.
2) Turn all LEDs on then off.
3) Flash LEDs 5 times - on 1 sec/off 1 sec.

Second Programs
1) Go fwd 1 sec, turn right, go fwd 1 sec, stop
2) Continuous spirograph motion.

ENGR 101: Robotics
Assignment 1 – Due Next Time!

- Program the Scribbler to perform some activity that involves (at least) flashing LEDs, motion, and sound.
- Be prepared to demonstrate your program at the start of the next class.