A-maze-ing Race Project Report

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OUTLINE:

* Intro
* Software
  + Movement
  + Colour sensor
  + IR scanner
  + Microphone
  + Line detector
* Hardware
  + Bandpass filter
  + IR scanner

**Introduction:**

**Software:**

Movement

Colour sensor

To solve the waypoint challenges of the maze, the RGB LEDs were used to detect colour and make the appropriate movement. Values were collected when red, green, blue, and no light was shown and used to differentiate between the test colours. The challenge is determined to be white, if red, green, and blue values are all high; it is black if the values are all low. Green was distinguished if the green value was higher than both red and blue; and blue would have blue values higher than red and green. Finally, for red and orange, there was much testing involved to distinguish between the two. In certain lighting, the values for orange was almost the same as the ones for red in a different light setting. The solution was to read in the no-light value as the ambient light. If the ambient light was lower than the specified value, the red value had to be increased before separating into red or orange. Then according to the colour determined, the pre-set movement functions were used to direct the robot in the correct direction.