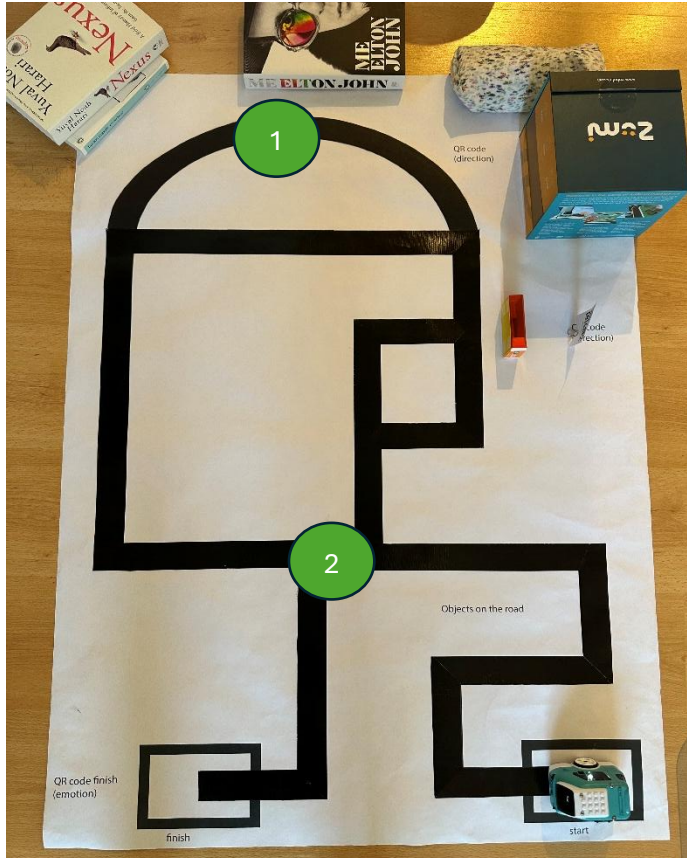


Robot Challenge: Student Defined Tasks

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1. Change Request:

We are proposing two changes to the current board layout. (Marked in picture below)



1. We propose removing the curve at the top because with the additional black paper to properly mark Zumi's line, Zumi gets stuck with the wheels on slight change in topography. It is easier to create rectangular shapes with the tape. There could be an additional testing area for circles that are only printed or do not follow a line.
2. We think the two lines are too close together at point two and it would lead to less failures during the test setting, if there was a bigger gap.

2. Feature Request

We would like to propose the feature face detection to the board. There is an integrated function `find_face()` in Zumi. The setting up would be with a sightseeing location where a QR code commands Zumi to take a picture and then search for faces. We would use printed pictures of public people like President Obama because of privacy concerns and so that there is a controlled environment.

Main Task Level 1: QR code is read, and picture is taken (validated)

Main Task Level 2: Zumi performs face detection and displays whether a face was found. (validated)

Possible Surprises: No face is there, multiple faces are there

Extra Task: Zumi recognizes the face and displays custom greeting e.g., "Hello Mr. Obama!" (Not validated yet)

The Extra Task is challenging however we will supply the teams with predefined pictures and the exact set up. This way we do not need any Machine Learning to detect a certain face but can use the Haar Values recorded by Zumi.

3. Acceptance Criteria

Grading Criteria

Driving Tasks	
Main Task Level 1: QR code is read, and picture is taken	No: Zumi did not reach sight/checkpoint or Zumi could not read and interpret the QR Code Yes, partially: reached the checkpoint and read the QR Code but did not take a picture. Yes: reached Checkpoint, read QR code and took picture
Main Task Level 2: Zumi performs face detection and displays whether a face was found. If a face is found delete picture if not keep picture	No: Zumi did not run face detection on picture, or no picture was taken Yes, partially: Zumi ran face detection but got the wrong result or Zumi ran face detection got the right result but did not display something on the screen. Yes: Zumi performs face detection and displays whether a face was found.
Extra Task: Zumi recognizes the face and displays custom greeting e.g., "Hello Mr. Obama!"	No: Zumi cannot detect correct Person Yes, partially: Zumi detected correct Person but did not display greeting. Yes: Zumi recognizes the face and displays custom greeting e.g., "Hello Mr. Obama!"
Logging Tasks	
Zumi logs the QR Code at sightseeing location. e.g., timestamp, QR-Code detection, command logged	No: no logging Yes, partially: logged but wrong format or time is wrong. Yes: correct information is logged

Zumi saves picture if no face detected and deletes picture if face is detected	No: picture not saved Yes, partially: picture saved but conditionals are ignored. Yes: the picture is saved correctly
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