

PARKPAL DEMO AGENDA

Section 001

Group 07

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This system detects spacial parking errors and provides dynamic visual parking suggestions.

Design Process Review

1. Buzzer Removal (system architecture drawing)

Change made because one buzzer is adequate, and to make the system economically feasible.

2. Matrix shift register implementation (git merge !7) (electrical schematic)

Change was made to conserve GPIO pin usage.

3. 5 second timer removal (git merge !5)

Change made to alert the driver of parking errors as soon as possible.

4. Beeping instead of constant (git merge !5)

Change was made to make the sound less tiring and irritating to others in the parking lot.

5. System Scale Down • November 20, 2024 (system architecture drawing)

Change was made to facilitate setup of implementation demo.

6. LED Matrix Removal • November 20, 2024 (system architecture drawing)

Change made because one matrix is adequate, and to make the system economically feasible.

Testing

Measurement standard is highlighted

1. Test sensor accuracy

Place an object at a measured distance and verify the data being read in by the sensor.

The parameters and test input are the objects position relative to the sensors.

To pass, the sensor must read the correct distance in centimetres, with an error of ± 2 cm.

2. Test arrow light direction

Place objects outside the boundaries of the space, verify the LEDs blink the correct arrows.

The parameters and test inputs are the varying parking positions and directions in the space.

To pass, the light matrix must visually display the correct arrow based on the parking direction.

3. Test buzzer volume

A cellphone should be placed 1 metre away from the active buzzer, recording the test audio.

The parameters and test input are the buzzers volume from a distance of one meter away.

To pass, the phone must detect a volume >0 from a distance of 1 meter away from the buzzer.