

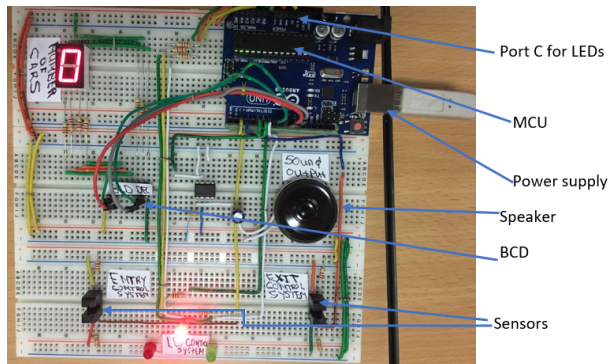


Fig. 3. Flowchart showing how the prototype should work

Quantities measured	Voltage(V)
7-Segment potential	4.85
Speaker potential	0.41
RGB LED potential	3.34
Sensor potential	4.72

Fig. 4. Table of the measurements

enters or leave the parking. The orange light must be set as default, the green light must be on when the car enters and red light when the parking is full. With the aid of the software developed and the hardware devices and components used, the prototype model of the device monitoring the parking space was achieved. The code could compile resulting in a fully functioning microcontroller. The microcontroller could respond to the sensors when there was an interrupt which is the vehicle and use its fast PWM functionality to generate sound and control the lighting of LEDs when the vehicle enters or leaves the parking space. The MCU could communicate with the 7-segment display to show the number of cars in the parking space with the assistance of the Binary Coded Decimal (BCD). Necessary clarifications are included in the source code of the project and on figure 3. Some necessary measurements were taken from the built circuit such as the potential going to the 7-Segment, potential going to the speaker as the number of cars changes, potential supplied to the LEDs and the sensors. This result is summarised in figure 4 captured as a picture. It was found that the potential and frequency of the speaker remained unchanged but its duty cycle changes when the number of cars were increasing and decreasing.

V. RECOMMENDATIONS

On the project brief, it was stated that the 7-segment must display the number of cars in the parking. The showing of number of cars in the parking space does not convey anything to the driver of the vehicle assuming that he or she might not know the capacity of the parking. This could be better if the 7-Segment shows the number of available spaces in the parking

so that the driver can even see at the distance that there is no space available if zero is shown. It is recommended also that the parking must have other restrictions on access to the parking for safety reasons.

VI. CONCLUSION

During the report, the necessary outcomes that were specified in the project brief were achieved. The solution to the problem was found and the prototype could do as required. It could sense the car and give it access if the parking is not full and switch corresponding LEDs. The potentials supplied to some part of the prototype were measured and some conclusions based on them were obtained.

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