Car Parking Sensor System

The goal of this project is to learn how to use the digital input and output (I/O) pins, PWM, Timer, and MSSP1 of the PIC16F18855 microcontroller. As a real-world application, we examine a car parking sensor system.

# Equipment List

* Express board
* Ping Sensor
* Neopixel

# System Design Specifications

We will design a car parking sensor system using a Ping sensor, a Neopixel LED (as a warning) and a servo (to simulate throttle control). The servo all the way to the left will indicate the user would have full throttle control and all the way to right will indicate no throttle control and the brake is fully applied.

* **Imminent collision:** If there is an object within 10 cm of the sensor the servo should be all the way to the right to indicate that the break is fully applied; also the Neopixel should be red.
* **Possible collision:** If there is an object within 30 cm of the sensor the servo should start moving from the left to the right proportionally also the Neopixel should be flashing yellow at an increasing rate the closer the object is.
* **No possible collision:** If there is no object within 30 cm of the sensor the servo should be in the left position and the Neopixel should be green.