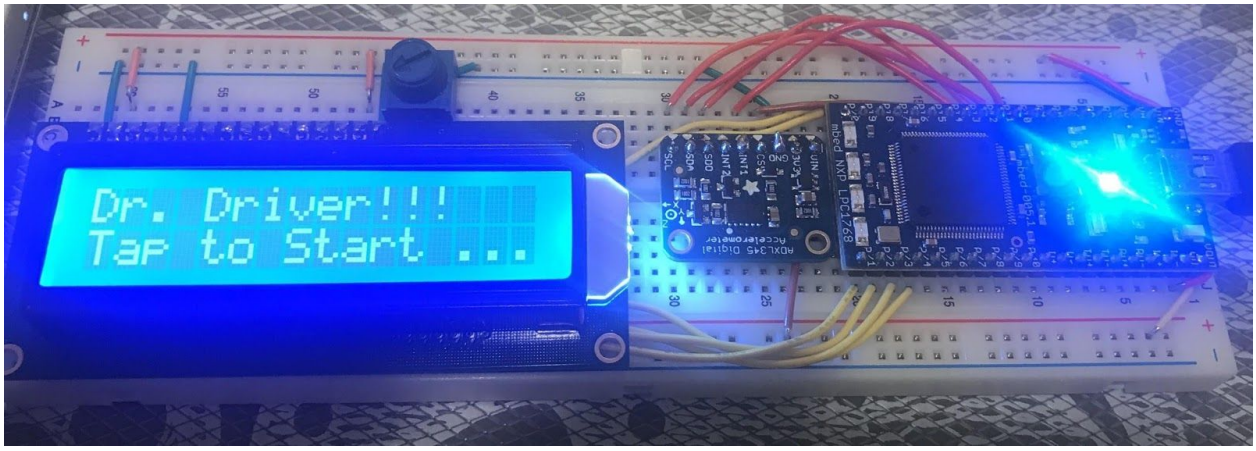
Final Project - Dr. Driver!

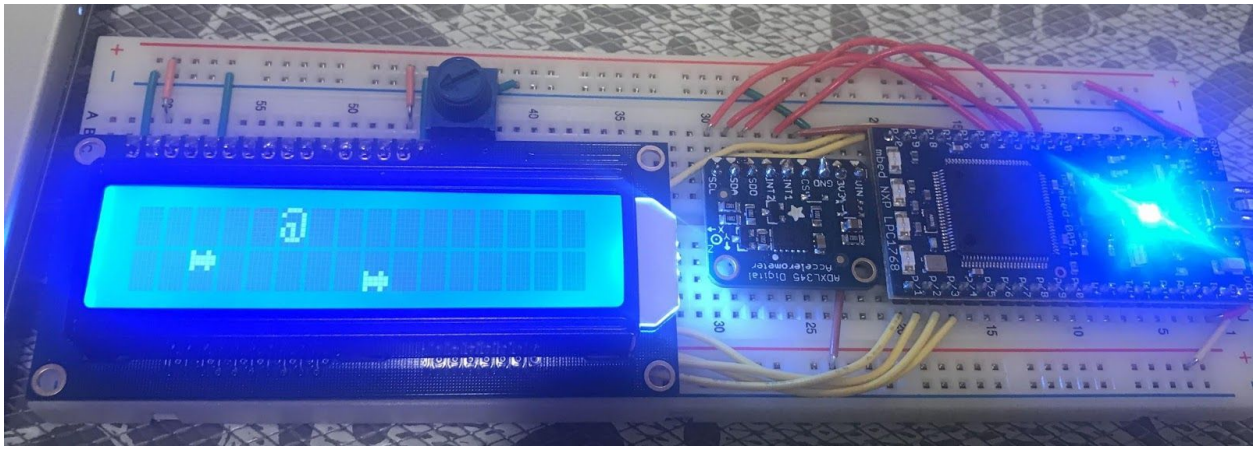


Dr. Driver is a classic video game available in many legacy video game consoles. The concept is that you are driving a car on the road, along with other cars and obstacles. The longer you stay on the road without hitting obstacles, the higher the score is.

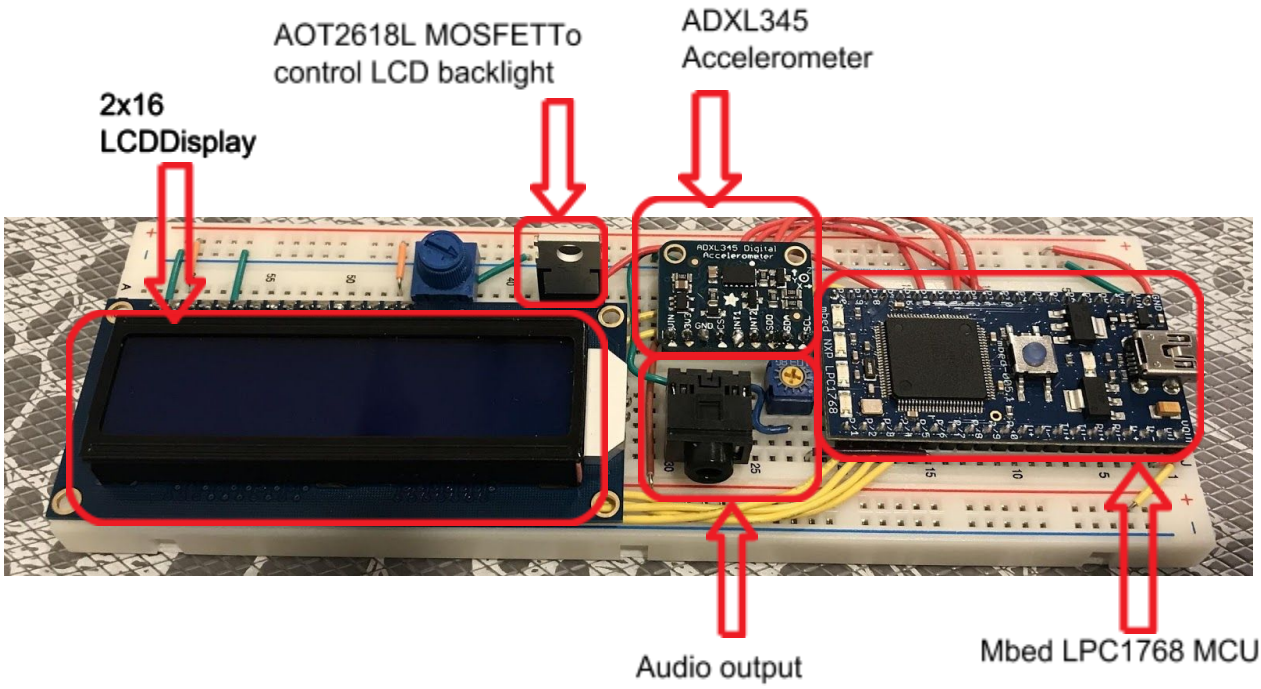
The implementation of the game requires no gaming controller. With the capability of AXDL345, it is possible to maneuver the car by tilting the entire board. By tilting the board up/down, the car will perform changing lane, thus avoiding the obstacles.

The “Enter” key is implemented using the TAP interrupt of ADXL345.

From the software perspective, the implementation involves programming the main state machine of the game, the state machine of the in-game action, random obstacle generation using a timer and rand() function, etc.



Hardware configuration



Connection:

- LCD connect to p20, p19, p21, p22, p23, p24
- LCD backlight control at p16, connecting to AOT2618L to turn on / off backlight
- Audio out using PWM output at pin 26, connecting to a pod and then headphone jack
- ADXL345 Accelerometer connecting to p11-14 using SPI interface

Hardware features:

- Interrupt input from Accelerometer
- Digital Output to control LCD backlight
- Custom characters programmed to the LCD
- Data acquition from the Accelerometer using timed polling
- Internal Flash management

Code hierarchy

Code can be found at:
https://github.com/choeecs27/mbedDrDriverGame.git