ECE153B Winter 2021 Project Proposal: “Emoticon Defence”
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Overview

A turn-based tower defence/attack game displayed on the terminal; one player moves a vertically manoeuvrable cannon and defends the left side of the screen, while another player sends various emoticons from the right towards the left of the screen. The tower wins a different number of points for each type of attacking emoticon, and for each turn survived. When an emoticon reaches the left side, the tower’s health decreases. The game ends after the tower’s health reaches 0. The LCD screen (separate from the discovery board) displays the defender’s score, the tower’s health, or event-based messages (like game over).

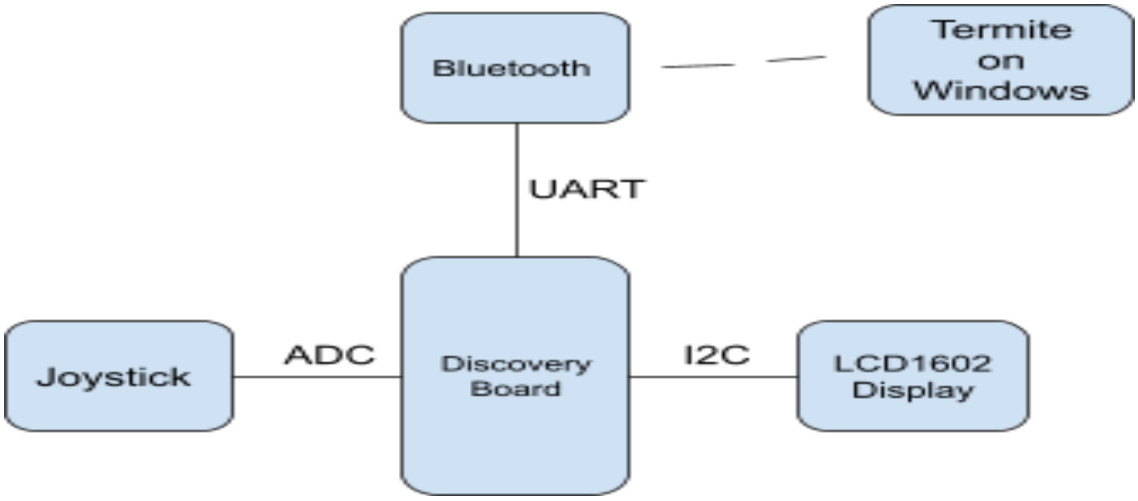
Peripherals

HC-05 Wireless Bluetooth
LCD1602 Display
Joystick Module

Protocols

UART (Bluetooth)
I2C (LCD Display)
PWM (Joystick)

Block Diagram



Software Structure

- text graphic display program
- Interrupt handlers for Defender/Attacker turns (different joystick outputs)
- Interrupt handlers for Joystick Inputs
- Interrupt handlers for LCD Modes (messages or tower)