Toronto Metropolitan University

Department of Electrical, Computer, & Biomedical Engineering
Faculty of Engineering & Architectural Science

Course Title:	Embedded Systems Design
Course Number:	COE 718
Semester/Year (e.g.F2016)	F2023

Instructor:	Dr. Gul Khan

Assignment/Lab Number:	
Assignment/Lab Title:	Project Interim Report

Submission Date:	
Due Date:	

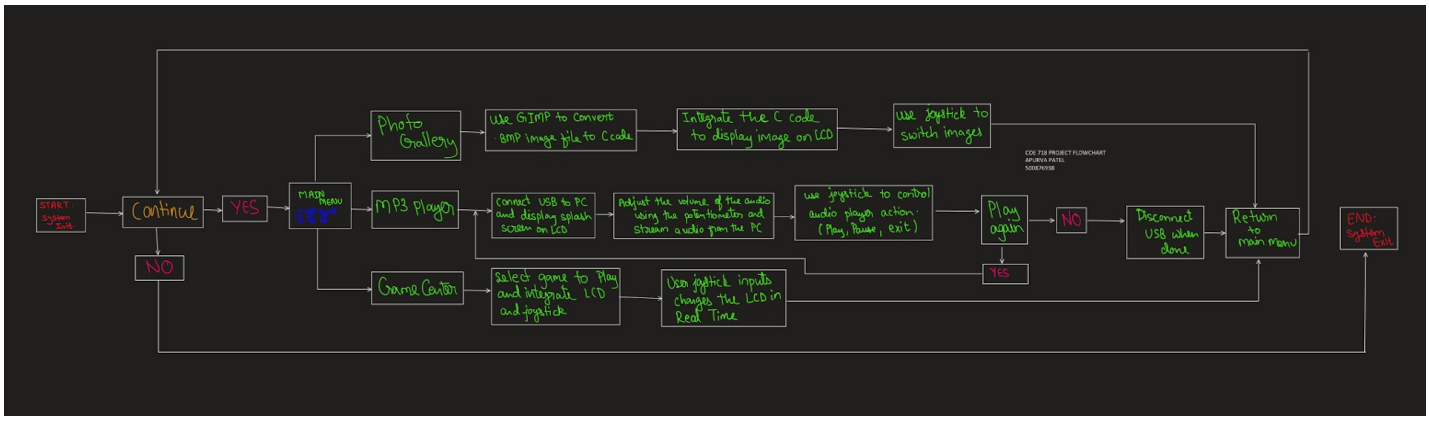
Student LAST Name	Student FIRST Name	Student Number	Section	Signature*
Patel	Apurva	500876938	04	AP

*By signing above you attest that you have contributed to this written lab report and confirm that all work you have contributed to this lab report is your own work. Any suspicion of copying or plagiarism in this work will result in an investigation of Academic Misconduct and may result in a "0" on the work, an "F" in the course, or possibly more severe penalties, as well as a Disciplinary Notice on your academic record under the Student Code of Academic Conduct, which can be found online at: https://www.torontomu.ca/content/dam/senate/policies/pol60.pdf

Objective:

The final project aims to build a media center using the MCB1700 board, uVision, and the programming concepts covered in the semester. The media center will have a photo gallery to show different .bmp files, an mp3 player for streaming audio tracks from the PC, and a game center with one or more animated games for the user to play.

Flow Chart/Diagram:

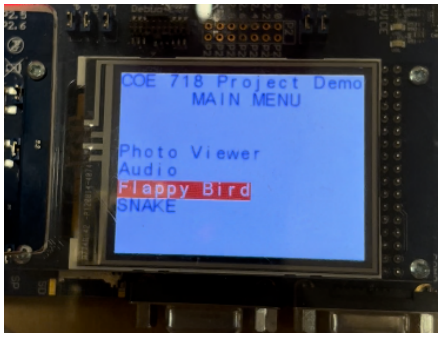


Progress:

I have split the project into 3 milestones:

1. Game Center
2. Photo Gallery
3. MP3 Audio Player

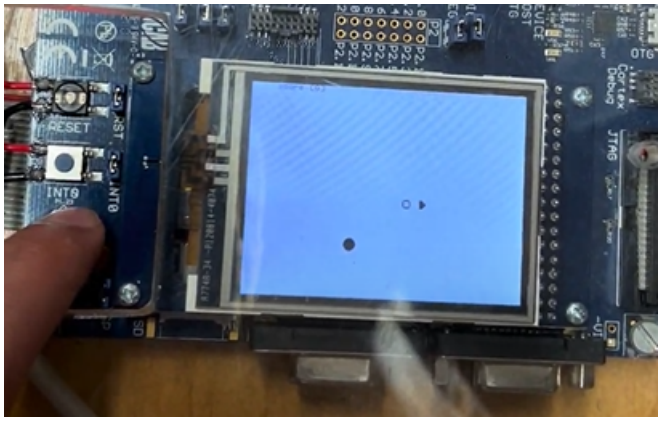
Main menu of the media center:



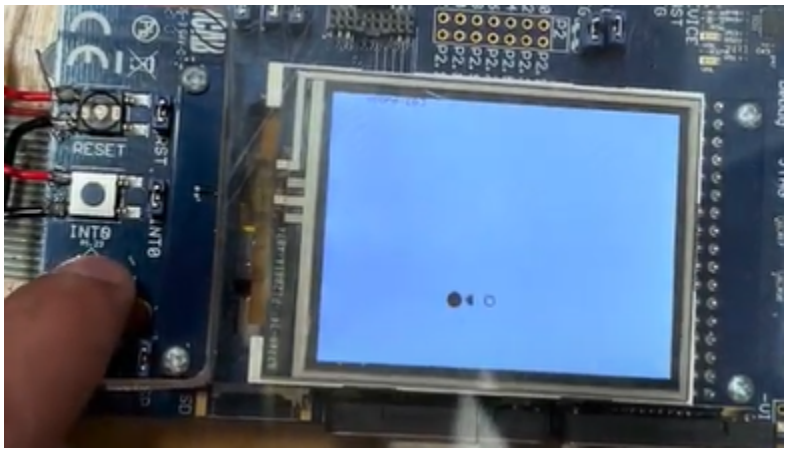
In milestone 1 (Game Center), I have developed two games:

A) The SNAKE game where the snake moves in the direction depending on the user input (Joystick direction). If the snake crosses through a dot, the length of the snake starts to increase and if the snake touches the boundary of the MCB1700 LCD display, the game will end.
B) The FLAPPY BIRD game where the user toggles/holds the SELECT button inorder to keep the bird hovering and dodging the obstacles as and when the game progresses.

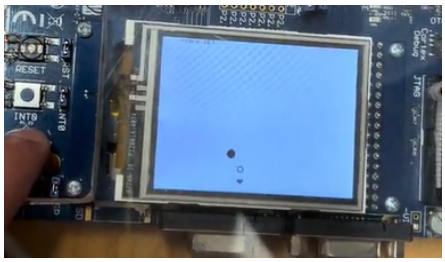
Start of the SNAKE game:



Snake approaching the dot:

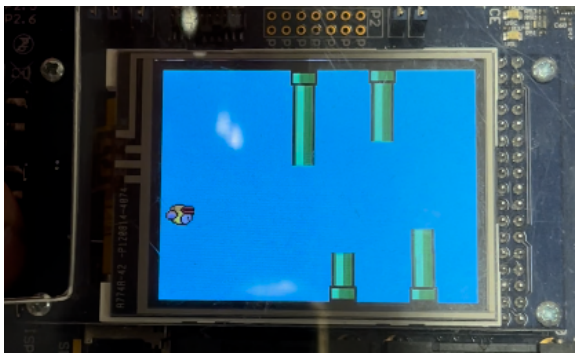


Snake hitting the wall and game exits:

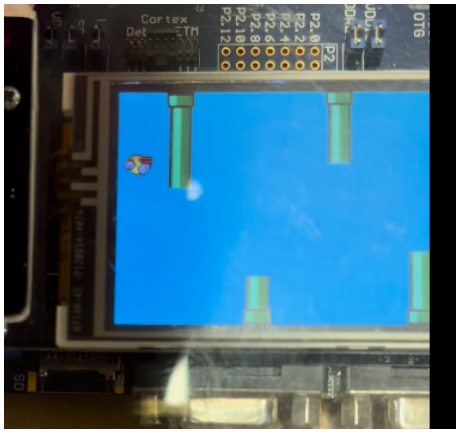


Start the Flappy bird game:

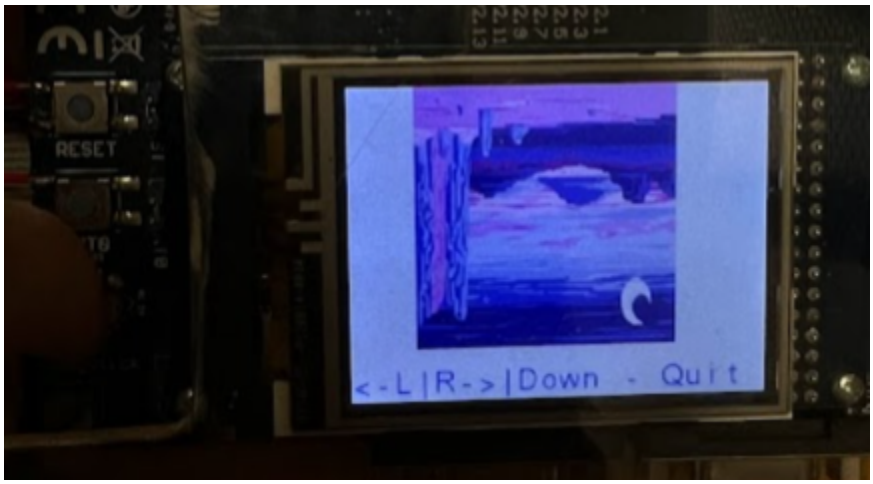
Bird moving through the obstacles:



Bird crashing into an obstacle:



In milestone 2 (Photo Gallery), I have got 1 photo to show up on the MCB1700 LCD display by converting the .bmp file to .c file using GIMP. However, the image is being inverted when displayed.



Future Plan:

Work on milestone 2 and 3 to fix the inverted image display problem and get the audio player to work respectively. I have also worked on the flappy bird game, but the bird hovers and moves on when the ‘SELECT’ button is long pressed instead of toggling it. I have to implement edge detection, similar to the borders of the snake game, for the pipes through which the flappy bird moves through.