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CS 479

Lab 4 – Individual Report

In this lab we are building a smart skin Interface which allows the user to control external devices. We will create a smart pad which is embedded with the capacitive sensors which is used for interfacing with the external devices. We will use capacitive sensors to detect the touch events that happen on the smart pad. MPR 121 Board is used to detect the touch events that occur on the smart pad. When a finger makes contact with the electrode, the capacitive sensors trigger a change due to the touch event occurred. To make a smart skin interface we will cut two layers of vinyl that is bigger than the copper tape. Similarly, we will cut four pieces of copper tape that are same in size. We will connect the wires from the electrodes directly to the MPR 121 board. When we run the processing code a welcome screen will pop up as shown in Fig 1.

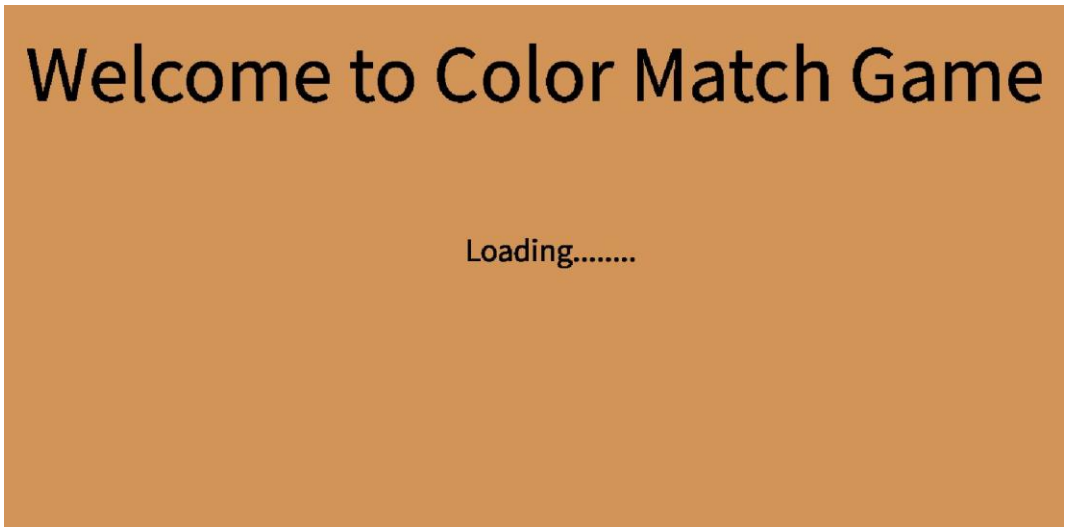

Fig 1: Welcome screen

When the game starts all the four polygons will be white in color. The user can see a box that contains the number of lives and score of the user. The circles will fall from the top with different colors.

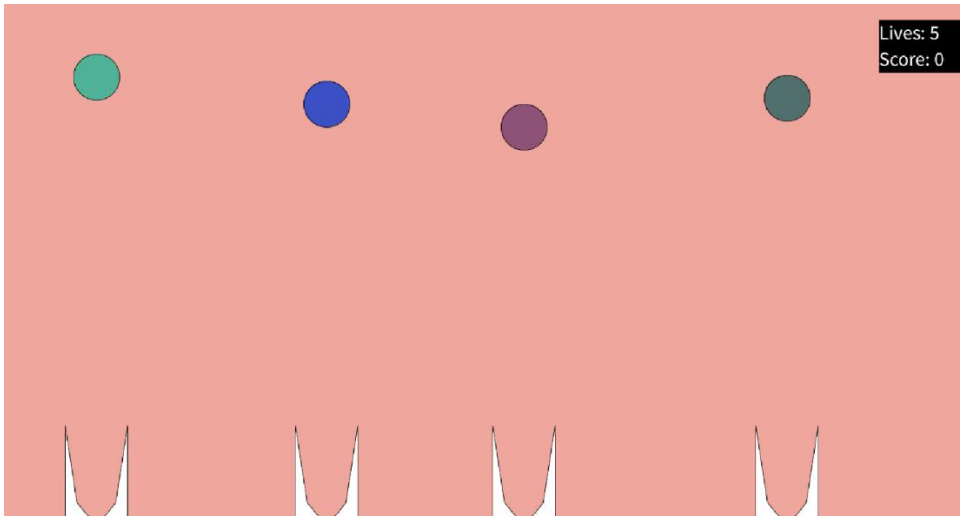

Fig 2: Game screen when the game is started

The color of polygon will change when we tap on smart pad. In order to score in the game, the polygon should match the color of the circle. When both the polygon and circle match with the same color the score will rise by 1 point.

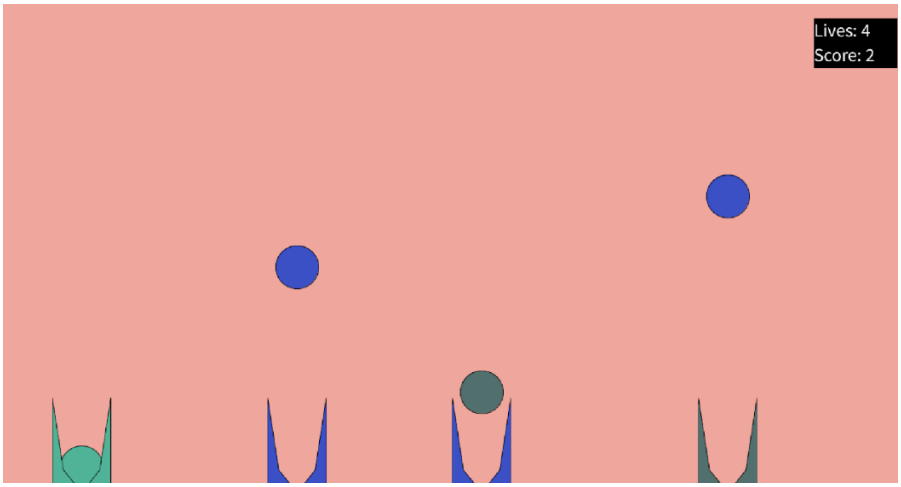

Fig 3: Game screen when the user has 4 lives and score is at 2.

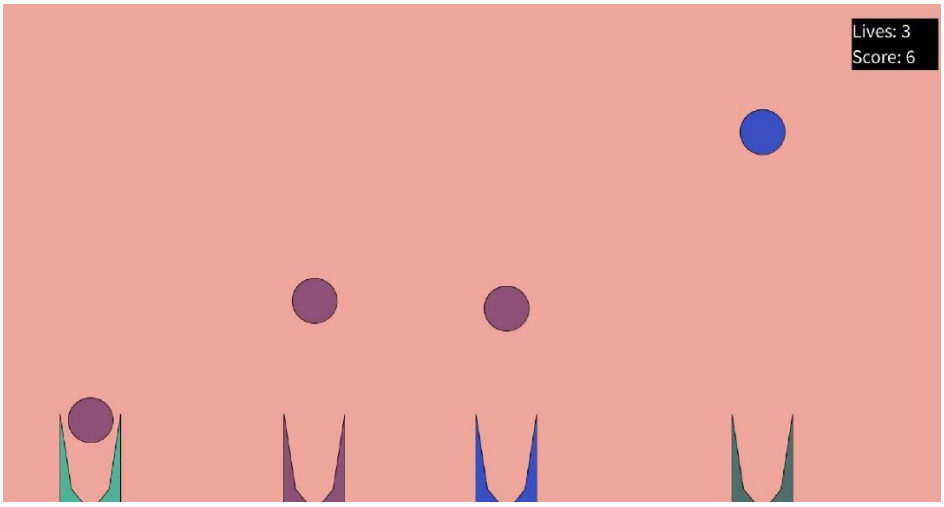

Fig 4: Game screen when the user has 3 lives and score is at 6.

In order to match the colors, the user should tap on the smart pad. When the color of polygon and color of circle doesn't match then the user will loose one live. In this way the user can play until the lives are 0. When the user hits 0 lives the game will end and have a end screen stating the score user achieved.

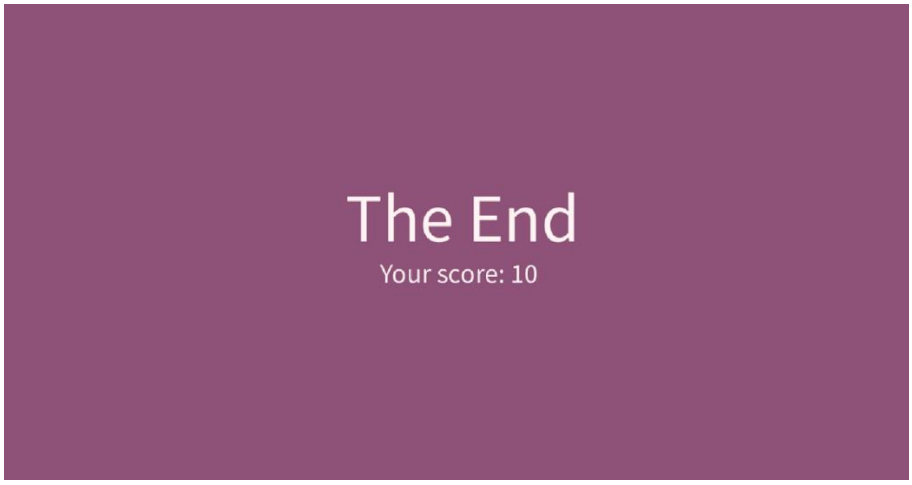

Fig 5: End screen when the user hits 0 lives.