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Lab 4

Game Description

For this lab, I will be creating a breakout game using mBed. In breakout, the player controls a platform that hits a ball towards arrangements of blocks. Upon being hit by the ball, a block disappears, and the ball then bounces back in the other direction. The objective of the game is to make all of the blocks disappear.

Game element summary:

* Button A: move the platform to the left.
* Button B: move the platform to the right.
* Button C: menu button, also activates power-up if the player has one.
* Temperature sensor: constantly runs, generates power-ups.
* Score: displayed on the LCD.

The game has three buttons. Two of them (buttons A and B) move the platform left and right. A third button (button C) is the menu button and is used for starting the game and restarting once the current game finishes. Button C also activates a power-up when pressed that will alter the game in various ways.

The temperature sensor is used to award power-ups to the player. Once the temperature is above a certain threshold, the player will be given a power-up. This power-up will make the ball and the paddle faster on the screen. The effects of the power-up are permanent and will leave an effect on the game until it is reset. After the power-up is used, the user can regain the power-up if the temperature meets requirements again. This means that the user can make the ball and paddle faster each time the power-up is used.

Score will be displayed on the LCD and will be determined by the time it takes the player to hit the next block and the total number of blocks hit. Each time a block is removed, the score will be incremented by 10 points. The user will lose 5 points each time the ball falls below the platform. Therefore, it is possible to obtain a negative score.

The player starts the game by pressing button C. This loads the game with all blocks, a ball, and a centered platform. The ball then begins moving towards an initial random direction based on the temperature sensor reading. Once all blocks have been removed from the screen, the score will be displayed on the LCD. If the player presses button C, Breakout will reset and the score will be cleared.