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Extended Abstract – Tunnel Flight Game

Title of the project

The working title of our project is *Tunnel Flight Game* as our project is a game similar to the popular *Chopper* or *Copter* game. A single player tries to survive for as long as possible inside a narrow tunnel that is ever changing. The only means of surviving is to either fall down using gravity or to thrust upward in order to gain altitude.

Objective and Requirements

The project should use the display on the basic I/O shield. Furthermore, it should allow player control through at least one button on the shield.

The tunnel or cave should be procedurally generated and endless whilst still being survivable at all times granted that the player is skillful. There might, however, be a level system present that alters the rate at which new obstacles are met.

Solution

The game will be running on the ChipKIT UNO32 platform and rely on heavy use of a hardware clock and the display on the provided basic I/O shield. Timers will be used in order to sync the game and allow it to run without lagging as certain tasks might take longer than other to execute.

Small sprites will be used for drawing, and the tunnel will have a set width that is shifted small bits in each segment that is drawn, with each set being a few pixels wide.

Verification

Our project will be tested by playing the game thoroughly in order to find and eliminate bugs that are present in our code. Moreover, verification will be done by letting the program run all by itself on the hardware for a long time in order to ensure stability. This will find if there are any memory leaks in the program since leaving it to run all by itself will cause the player to crash all the time and the game to restart.