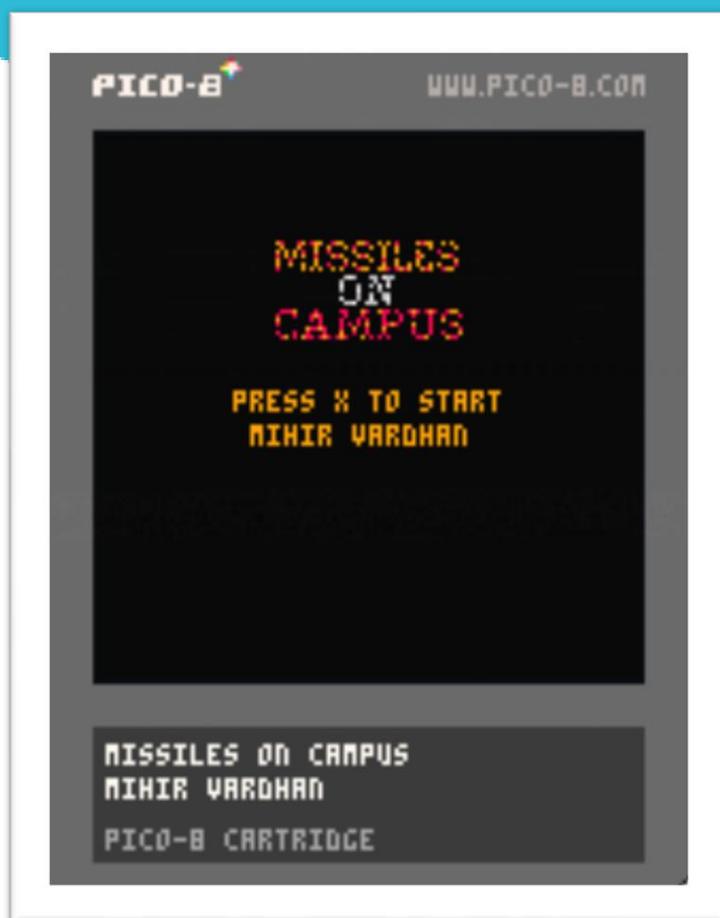# Missiles On Campus

Stanford University, 2017

OBJECTIVE

During my 3-week summer course at Stanford University in 2017, I attended a class on "Computer Simulations and Interactive Media," CSIM. I learned to program my own 8bit videogames on the Pico8 IDE using Lua. For my final project, with my passion for the integration of hardware and software, I asked my professor if I could go out of the program course and integrate hardware into my project. 'Missiles on Campus' was born!

PROJECT OVERVIEW

The game itself is quite simple. There are 8 red 'missiles' that randomly lower down the screen. Once they reach the bottom, they loop back up and start over. The main player must avoid these missiles. However, green targets will fall which must be collected by the player. As the targets are collected, the frequency of targets and speed of missiles increases.

What makes this game special is that it is controlled by a wooden glove with an inertial measurement unit. The angle and angular velocity of this glove are used to control the player on the screen.

CREATORS STATEMENT

The main goal of every game is to involve its user to the point where he or she feels like they are in the game itself. Most videogames take movement inputs from controllers like keyboards and joysticks but don't really require the user to physically move something in the way they want to move their player. I have built this game to give the user a whole new experience to playing a videogame.

The whole point of including an external controller was in order to make the user feel more involved in the game. Beside that, the game is extremely simple and is only time based. Whether I have succeeded in my goal of involving the user to another level is up to you, the player.

The game "Missiles on Campus" is not a serious game and has no goal. Its average duration is under a minute and the only task the user has is to do whatever is takes to survive.

WHAT MAKES THE GAME FUN?

The game looks simple because it is. It uses simple strategies to try to kill the player like randomly lowering some missiles and stopping others. Since missiles come down in waves and a new wave is formed every 10-15 seconds, the player can never reach a situation where the playfield is scattered with missiles and the player has open space to move around. Since more than a minute of survival is rare, if the player does survive more than a minute, his controls will be inverted adding to the list of things he has to be aware of.

CHALLENGES I FACED

Making my game was not half as easy as I thought it was going to be. I worked throughout the night on this game and it still does not work the way I want it to.

I spent a lot of my limited time trying to get into labs to build my prototype and debugging accelerometer issues. The biggest challenge I had to overcome though was getting the accelerometer to talk to pico-8 without my computer crashing.

A problem I still have not solved is mirroring my hand motions flawlessly. I hope to find time to include more vector math into the inertial measurement unit for more precise control.