

---

---

# Surfing on a Sine Wave

— Valerie Sarge and Sam Jacobs —

---

---

# Game Basics



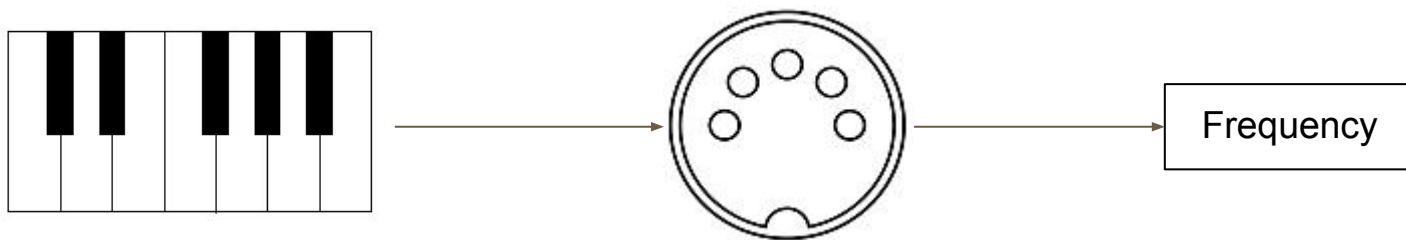
Surfing on a Sine Wave will be a side-scrolling video game.

The aim is to produce a game with a non-traditional control scheme; players will affect the landscape rather than the character itself.

# Implementation Overview



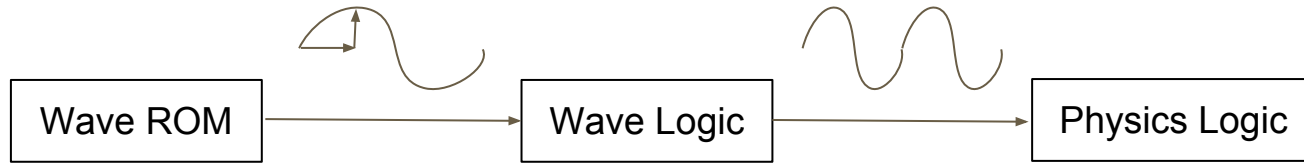
# MIDI Deserializer



The deserializer module takes input from the keyboard and extracts data on the pitch of the most recent key press.

Potential stretch goal: incorporate amplitude input as well.

# Wave and Physics Logic

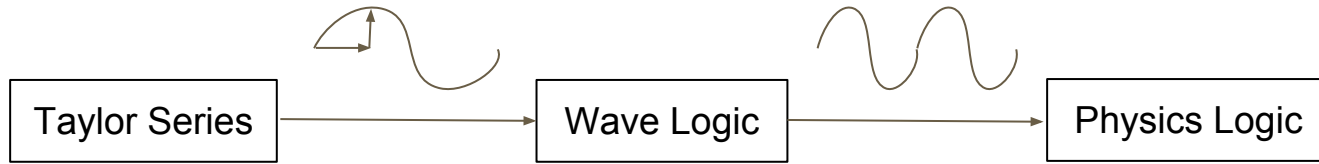


The wave ROM contains values of the sine function.

The wave logic module selects from these values to replicate a sine wave of the requested frequency.

The physics module handles transitions and communication.

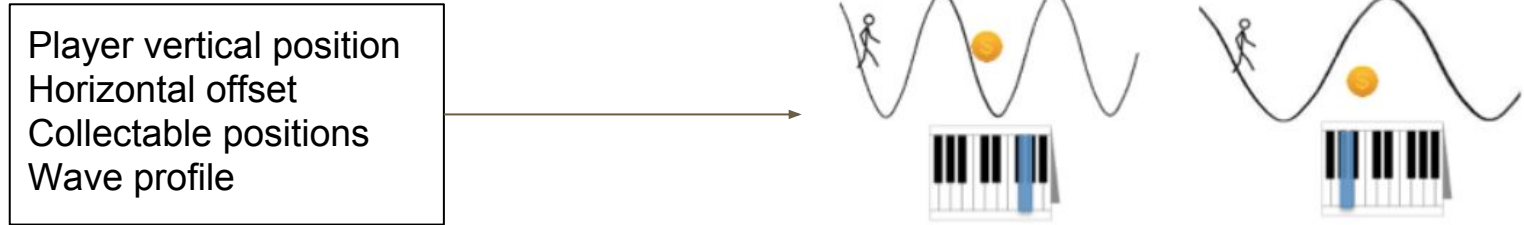
# Wave and Physics Logic: Alternative approach



Pros: Rapid calculation of sine as well as other waveforms, less memory required.

Cons: Harder to implement, tradeoff between accuracy and speed.

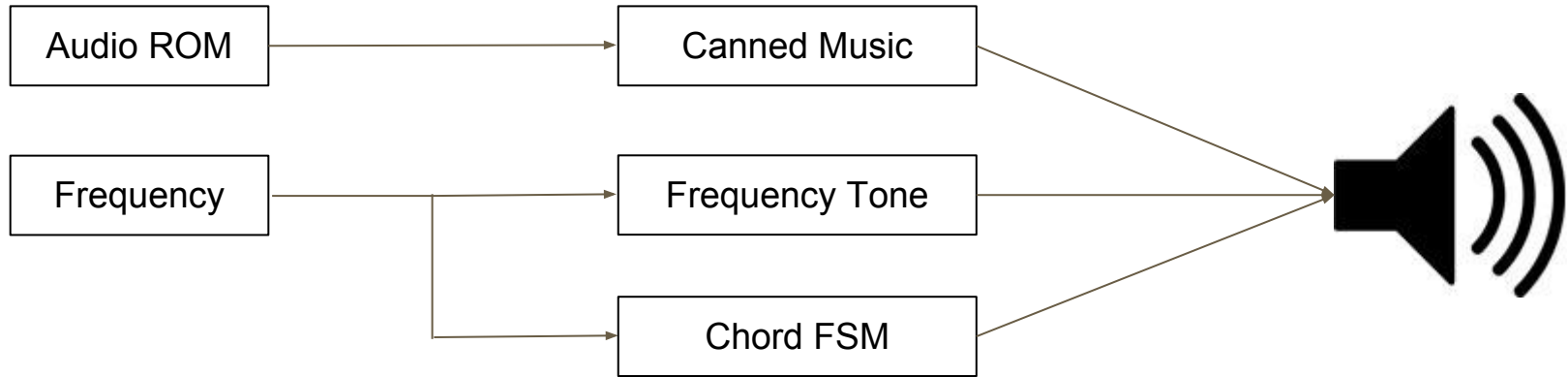
# Display



The display module takes in data on player and collectable statuses and the background waveform and produces XVGA output one pixel at a time.

Lots of potential stretch goals!

# Audio



Several different options, increasing in complexity.



# Game Logic

The game logic module handles transfer of data between peripheral modules as well as the game state machine.

It updates positions and states of collectables, then passes this information to display.

This module also takes care of hit detection.

# Timeline



	11/7	11/14	11/21	11/28	12/5
Deserializer	Sam	Sam			
Display	Valerie				
Wave Logic		Valerie			
Game Logic			Sam	Sam	
Physics			Valerie		
Audio				Valerie	
Extras/Bug Fixes					Both

# Conclusion: Goals

The main focus of this project is to create a game that is not only functional, but also enjoyable to play and visually pleasing.

This project explores the use of a different kind of input and gameplay than a standard sidescroller; we'd like to show that it can be a reasonable and fun game type.

**Questions?**