

1. Commitment:

- a. Deserialization
 - i. Reads a frequency from keyboard input (one key pressed at a time.)
- b. Physics / Wave Logic
 - i. Produces a smooth sine waveform of the proper frequency by reading from a ROM.
 - ii. Physics module outputs player positions for smooth transit between frequencies.
- c. Display
 - i. Capable of rendering static player and collectable sprites.
 - ii. Background is separated into two regions by the waveform profile from the physics module.
 - iii. Title screen display available.
 - iv. Renders quickly (responds in real-time to inputs).
- d. Audio
 - i. Produces a frequency tone matching the input frequency.
- e. Game Logic
 - i. The scenery moves forward steadily.
 - ii. The player oscillates at the correct frequency.
 - iii. Collectables are generated and displayed.

2. Goal

- a. Deserialization
 - i. Reads frequencies from keyboard input; deals with multiple key presses.
- b. Physics / Wave Logic
 - i. Produces smooth sine waveforms; capable of handling multiple frequencies at a time to produce a superimposed waveform.
 - ii. Physics module handles smooth transitions between waveform types, for both the player's path and background display.
- c. Display
 - i. Renders animated sprites.
 - ii. Background contains an image (either rendered from memory or generated). (Waveform separates this background from the blue foreground).
 - iii. Score and title screens available.
 - iv. Renders quickly.
- d. Audio
 - i. Canned music plays from memory.
- e. Game Logic
 - i. Scenery moves forward at an increasing rate.
 - ii. Player oscillates with the correct player path.
 - iii. Collectables are generated and collected; score increases with collection.
 - iv. Enemies are generated and kill the player.

3. Stretch Goal

- a. Deserialization
 - i. Reads frequencies from keyboard input; parses all possible inputs into either a single frequency or a pair of frequencies.
- b. Physics / Wave Logic
 - i. Depending on gameplay testing, can produce a variety of superimposed waveform types (e.g. triangle waves).
 - ii. Flexible module; can be customized by game logic to produce any combination of wave types.
- c. Display
 - i. Background moves slowly and/or has filters applied for game effects (e.g. directional blur).
 - ii. Background and/or foreground effect generated using appropriate noise.
- d. Audio
 - i. Simple music generation FSM plays music according to the input frequency.
- e. Game Logic
 - i. Scenery moves forward at an increasing rate.
 - ii. Player oscillates with the correct player path.
 - iii. Collectables are generated and collected; score increases with collection.
 - iv. Enemies are generated; player is killed by enemies.
 - v. Generation of enemies and collectables is not hard-coded or fully deterministic, but reasonable spacing and patterns are enforced by the game logic.
 - vi. Collectables and enemies move relative to the background.
 - vii. A high score is recorded across plays and displayed on the 'game over' screen.