

Penalty Kick!!!

Game Design Document Taishi Hiraishi

Overview

"Penalty Kick!!!" will be a basic 2D arcade game made using pygame and simpleGE. The objective of this game is to simulate the finals of the Football World Cup 2022, and the player to undergo the penalty kick shoot out as a team Argentina against team France, which will be a computer. The player will have 5 trials each to be a kicker and goalkeeper. When the player is a kicker, players can choose to kick top right corner, bottom right corner, center, top left corner, and bottom right corner. The computer will be a goalkeeper in this scene, and randomly pick the direction to dive within the 5 options. When the player kicks in a direction which the computer didn't choose (dive), the player will score one point. When the player kicks in a direction which the computer chose/dove, the computer saved the ball. After one try, now the player will become the goalkeeper and choose which directions to dive. This process will repeat 5 times and player will win if they score more than the computer within the five tries, and if not, the computer wins.

The game will have 6 scenes: **Introduction, Kicker, GoalKeeper, Victory, Defeat, Settings**

Introduction:

When the game begins, it will show an intro screen with instructions and two buttons. The play button will take the game into the kicker state. The quit button will exit the game.

Kicker:

In the kicker's state, the kicker will be on the bottom center of the screen looking towards the goalkeeper that is located on the top center of the screen facing the kicker. The background will be a image of soccer field. On the bottom right corner, there will be 5 buttons showing all the directions which kickers can kick; top right corner, bottom right corner, center, top left corner, and bottom right corner. On the top right corner, there will be an score board which informs with the current score. After the player's input, the kicker will kick the ball which will move to the direction which the player chose, and the goalkeeper will dive in a direction which the computer randomly chose. After the animation, the game will automatically take the game in to goalkeeper state.

GoalKeeper:

In the goalkeeper's state, the screen will look the same except for the position of the keeper and the goalkeeper's positions; it will get swopped. After the player's input, the kicker will kick the ball which will move to the direction which the computer randomly chose, and the goalkeeper will dive in a direction which the player chose. After the animation, the game will automatically take the game in to kicker's state. However, after the 5th round, it will take the game to victory state or defeat state depending on the situation.

Victory:

In the victory state, the screen will have a label and a text "Congratulation!!! Argentina won the World Cup!!!" With the image of the trophy in the center and victorious music. The screen will have two buttons in the bottom right corner; Go Back, and Quit. Go Back button will take the game into the introduction state. The quit button will exit the game.

Defeat:

In the defeat state, the screen will have a label and a text "Oh no,,, France won the World cup,," With the image of the sad face emoji in the center and depressing music. The screen will have two buttons in the bottom right corner; Go Back, and Quit. Go Back button will take the game into the introduction state. The quit button will exit the game.

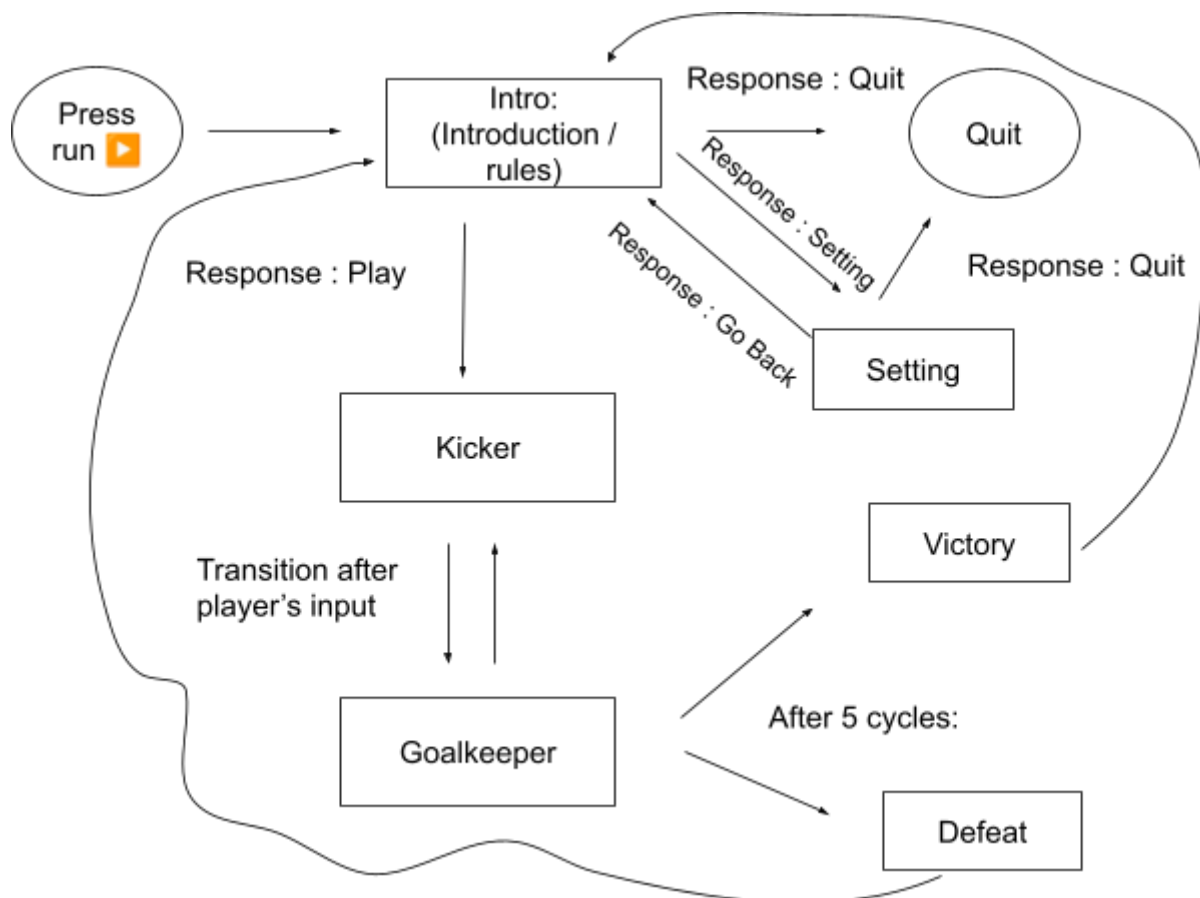
Settings:

In the setting state, the screen will have a label and the text of which it will explain the scoring probability of each situation that can happen in the game. It will look something like this:

example

Situation	Kicker's choice	Goalie's choice	Scoring probability
Both made same decision	→ (Bottom right corner)	→ (Bottom right corner)	0%
Both made different decision	→ (Bottom right corner)	← (Bottom left corner)	100%
Both made different decision on direction but same on height	↑→ (Top right corner)	↑← (Top left corner)	0%
Both made same decision on direction but different on height	↑→ (Top right corner)	→ (Bottom right corner)	50%

State Transition Diagram



State Transition Diagram

The player is initially sent to the Intro scene, which shows instructions & rules, and three buttons that ask them if they want to play the game, go to setting or quit it. If the user chooses to quit, the game ends. If the user chooses to go to the setting, they are sent to setting scene where they have two options: Go Back, or Quit which if they choose to quit, the game ends, and if they chose to go back, they go back to the intro scene. If the user chooses to play the game, they are sent to the kicker scene.

The kicker scene will end after user's input on kicking direction, and the game will be sent to the goalkeeper scene. The goalkeeper scene will also end after user's input but this time on diving direction, and the game will be sent to either victory or defeat scene depending on the situations.

In the victory/defeat section, two bottom will ask them to either quit or go back. If the user choses to quit, the game exits. If the user choses to go back, the game will be taken to intro scene.

Classes:

Intro

Kicker

GoalKeeper

Game

Setting

Victory

Defeat

Football

Sprites:

- Instructions
- btnPlay
- btnQuit
- btnSetting
- lblSetting
- btnGoBack
- Kicker
- lblScore
- Goakkeeper
- Goal post
- Football
- lblVictory
- Trophy
- lblDefeat
- sadEmoji

Non-sprite assets

- Score - an int containing the current score
- sndScore
- sndSave
- sndVictory

- sndDefeat