

# Star Wars Episode I: Pod Racer Prototype

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## ABSTRACT

In this paper, I outline the workings of my Star Wars Episode I: Pod Racer Prototype

## Warning

The Max Patch Requires an Xbox 360 Controller to Work Correctly

## 1. Introduction

In 1999 star wars Episode I: The Phantom Menace was released the film itself grossed \$924.3 million dollars worldwide. A spin-off of the film was Star Wars Episode I: Pod Racer game, this was based on scene from the film where a race is held with what can only be describes as jet powered chariots. The game was available for the N64, PC, Mac and Dreamcast and had some commercial success.

## 2. Aim

The aim of this project was to create a prototype audio engine for an updated Star Wars Episode I: Pod Racer game.

## 3. The Systems in the Prototype

### 3.1 Engine

The pod racer engine consists of three samples that fade between each other dependant on how far up the rev range the samples are. The samples are also pitched according to how far up the rev range they are. The speed of the transition between these samples and the speed of the pitch change is controlled by a counter. The counter in-turn is controlled by a varying speed metronome. The metronomes speed is varied by the positions of the Right and Left Triggers (throttle and brakes). The further the triggers are pushed the faster the metronome counts up or down.

### 3.2 Air Brakes

The Air brakes are trigger sensitive, the information provided by the left trigger is scaled to a number between 1 and 10, this information is then split into two sections. The first set of numbers control the speed of the Rev Metronome, this is used to make the engine sound slow down quicker when braking but also slow down the engine when applying both the throttle and the air brake. The second set of numbers is used to control the sound of the brakes moving and the air resistance created by the air brakes. The brake moving sounds work by assigning a short hydraulic sound to each number produced by the scaled trigger. When the number changes, a sound is output, this makes the brakes interactive so when the player modulates the amount of braking used the sound is affected. The air resistance sound is controlled by the same set of numbers however to stop the numbers changing too quickly and fading in the wind to early the braking numbers are used to

control the speed of a metronome which then fades in the air resistance loop.

A minor problem was encountered when creating the brake sound. On the Xbox 360 controller the Left and Right Triggers are on the same axis making it impossible for a braking sound to be played with both triggers depressed. I decided it was more important to have trigger sensitive brakes than to have just have a single brake button that would alleviate this problem. According to several sources from the Microsoft developer network this is not a unique problem.

### 3.3 Turbo

The two characters have different turbos that work in slightly different ways however both turbos require the player to be traveling more than 600 MPH before they can be activated.

Sebulba's turbo is a set switch, once triggered it cannot be stopped it increases the overall speed of the pod by 95 MPH and pitches the engine up by a further 0.5 for 8 seconds, the sound effect I have used is linear and can't be interrupted.

Anakin's turbo is a pulse turbo it requires the player to press the A button every two seconds, the turbo can be interrupted rather than having to use all the turbo fuel at once. When the player presses A a counter starts to count up after two seconds the counter will interrupt and count down again unless the player presses the button again. The sound used was created in a similar manner to the engine sounds and is designed to be pitched and faded depending on where the turbo is in its range.

The turbo system also has a turbo ready and a turbo depleted sound these sounds have been inserted to provide information to the player. The turbo ready sound plays when the craft reaches 600 MPH and the turbo is charged, the turbo depleted plays when the pod dips below 600 MPH or the player has expended all the fuel.

### 3.4 Targeting + Weapons

The weapons system requires the player to find a target before the weapon can be fired. The targeting system generates a random number which becomes the location of the target. The player must locate this target using the sound of the targeting system, the system plays a beep that when the crosshairs get closer gets louder and speeds up. When the target is locked a locked confirmation sound is played (a continuous tone or series of beeps). After the target is locked the weapon can be fired with X which is a triggered linear sound file.

### 3.5 Collisions

The collisions in the prototype are velocity sensitive, the system takes the velocity information provided by the left thumb stick and providing that the pod has hit the side of the track outputs one

of six randomly chosen collision sounds. The volume of these sounds is varied by the velocity information, the harder the velocity the louder the sound is.

### 3.6 Scrapes

The scrapes are used when the pod hits the side of the track but not hard enough to trigger a collision. The system consists of three separate files that are faded between one another depending on the speed of the pod.

### 3.7 Coupling Beam

The base of the coupling beam is a simple loop however to make sure this loop doesn't become repetitive quickly I created a phaser this effect was created using a tutorial found on the cycling 74 website. However I have modified the effect so that the left thumb stick modulates the phaser speed creating the effect of strain being put onto the coupling beam when cornering.

### 3.8 General Ambience

The ambience of the prototype is provided by three loops that are faded between depending on the speed. The first is a wind loop, then a "low road noise" then finally a high speed air resistance loop. This system is controlled by the global speed counter.

### 3.9 Filters and reverb

All the major sounds in the prototype are connected to a filter and a reverb effect this has been used to create the different sounds needed when changing the view and environment. The filters can be cycled through with the right shoulder button, the reverbs can be cycled through with the left shoulder button.

The left thumb stick is also connected to a separate high and low pass filter, this filter is designed to recreate the effect of the pod's position on the screen in relation to the player, high pass when the pod is far away and low pass when it is close up.

[for notes on sound design see Pod Racer Sound Design.doc]