

Introduction

These days it is not uncommon for a car to have either an inbuilt or portable GPS system installed. Therefore, it makes sense that this developing technology should be accompanied by suitable sound design that makes use of the car's interior audio hardware.

Functional Sound 1

The first sound is a proximity warning for when the car is approaching a speed camera. Whilst this alert already exists in many GPS units, what current technologies do not account for are the possibilities for localisation within a 4-speaker car system. Therefore my speed camera warning not only increases in urgency and volume but moves throughout the car system according to the camera's actual position relative to the car, making use of the Doppler effect to display an impending object. In my simulation, the speed camera warning represents moving towards the speed camera, and then driving past it.

For the speed camera proximity warning I wanted something percussive and slightly hollow because I felt such a sound would not get tedious when made repetitive, and I knew I wanted it to represent a "negative" warning so I made a semitone step-down at the start of the warning to create a minor harmony. I found a preset called Hollowed and took the saturation out of the LPF because it was slightly offensive and intrusive, again to make it more pleasant and take out some of the buzz that was behind the tone. I also took out all of the drive (distortion) to clean it up. My main concern was that if the sound was TOO unpleasant then the driver would just turn off the sound, however it still had to be able to catch their attention.

Functional Sound 2

I felt it would be a good idea if the car system congratulated the driver and created a sense of completion by playing a small tune in a major harmony whenever he did something positive, such as cleared a speed camera or school zone without exceeding the speed limit. Therefore after each of the first 3 sounds in the WAV file, there is an example of this "Positive Reward" sound.

I knew that the sound had to be positive and happy, and so I started by looking for a suitable preset that sounded bright and electronic. The Panic Arp preset seemed to work well, however it was too sharp and fuzzy which took away from its positivity. Therefore I changed the shape of VTO 1 to make it sound slightly cleaner and more pleasant, as well as took away all of the distortion.

Functional Sound 3

Likewise, modern car technologies make use of an Open Door alarm, but do not take advantage of the 4 speaker audio system to create a sense of localisation and represent which door is open. Therefore my door alarm would be played through whichever speaker corresponded with the door that was left open.

For the localised open door alarm I thought I wanted something slightly resonant to account for the fact that it would not need to be as incessant as the speed camera warning, but should still repeat over time with a longer time period between the noises. It did not need to be as unpleasant as the speed camera warning, but not as positive as the positive reward sound. After some searching I came across the Hoola Hoop preset in the FX panel, but it had too much attack and too much resonance, so once I took the attack down to about 35% and the resonance to about 40% it had a much better shape. The timbre itself wasn't desirable, which I likewise found for all of the other FX presets, so I chose the Wood Pan Flute and muted VTO Two that was producing an airy background noise, leaving a more pure tone.

Functional Sound 4

The localised seatbelt alert had a similar inspiration to the door alarm, however we have to assume that the car also has some technology that alerts the car when a seat has pressure applied to it but the seatbelt is not connected. Therefore the alarm does not sound forever, but rather just after the ignition has been started it plays for each seatbelt that is undone through the speaker that corresponds with that seat.

I decided that the seatbelt alarm should be similar to the door alarm, but different enough to be recognisable as a different alert. Therefore I kept the same tone and preset, but I changed the melody to three notes higher up the scale.

Functional Sound 5

The fifth sound is perhaps the most urgent or important, and therefore is also the most obnoxious. It is intended to be played when the headlights of the car are left on after the car has been turned off, the doors open and the keys are out of the ignition.

This one had to be harsh and noticeable, so I chose a Bass preset with a lot of fuzz and distortion and played it in the high register. It had to be loud enough that it could be heard after the driver had stepped outside of the car with the door open, and unpleasant enough to condition them not to keep leaving their lights on if it is a bad habit of theirs. However, in case the decision to leave the headlights on was intentional, the alarm stops after 5 beeps. It is also monotonous and obnoxious to further this feeling of negativity, in that it makes the driver not desire to hear the sound again.