Post Mortem

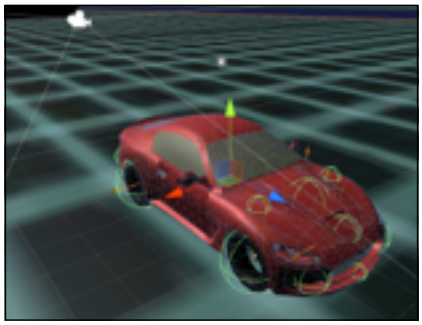
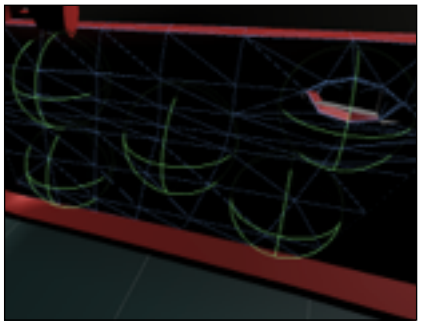
Analysis of group project

Jack Prior - 22 April 2016

Contribution

As a part time student I was not privy to the AI or physics lectures and so focused on game mechanics and UI. This is an outline of the features I incorporated:

- 6 scripts on Game state machine.
- 3 scripts on Vehicle Part Collision.
- 1 script on Vehicle Health.
- Vehicle Hinges on components.
- A photoshop design of the GUI.
- 1 script on Implementation of Start Menu UI.
- 1 script on Implementation of in-game UI.
- Implemented third party shader library on car.
- implemented particle effect smoke exhaust on car.

Game State Machine

```
StateMachine<GameManager> _stateMachine;
	public StateMachine<GameManager> getStateMachine()
	{
		return _stateMachine;
	}

	public event EventHandler RaceStartEvent;
	public event EventHandler RaceEndEvent;

	void Start(){
		_stateMachine = new StateMachine<GameManager>(this);
		_stateMachine.setState(new RaceStartState());
	}
```

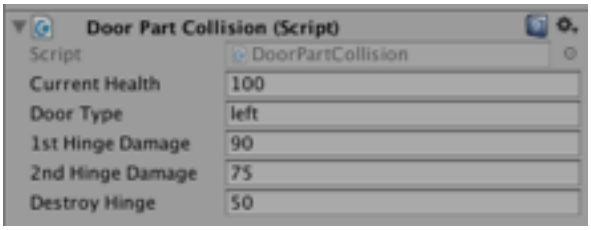
The Game state machine was intended to be an event based system to transfer knowledge of the global game state to any component and acts as a central hub for managing the game.

```
public interface AIState<A>
{
	//state life-cycle
	void enter(A agent);
	void execute(A agent);
	void exit(A agent);
}
```

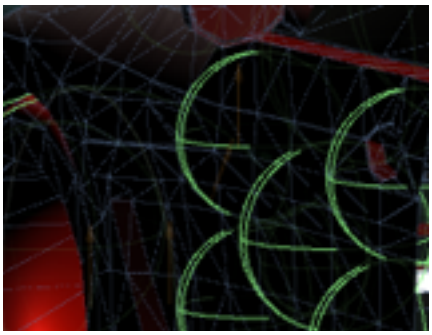
The States themselves were to follow an interface template and therefore could be extended easily.

Vehicle Damage

1. The vehicle health script kept track of the whole vehicle health.
2. The doors I rigged with a Hinge component and a Rigidbody. It measured the force of the impacts and after passing certain part health boundaries the doors degraded in three stages:

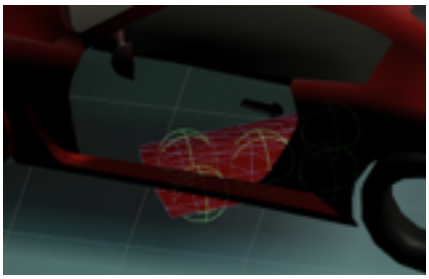


1. Door begins to swing a bit by increasing the limit of movement.



2. Hinge is rotated such that the door is not vertical anymore but seemingly dragging on the floor.

3. After a large amount of damage is inflicted the door comes completely off.



UI

Initial photoshop design layout I created:

After designing an initial UI layout I was told by my group to focus on the Game State Machine script and so this was not implemented fully. However in the next month I intended to focus on this and flesh it out fully.

Particle Effects

Perhaps the most satisfying part of the project for me was experimenting with the possibilities of particle effects. I adjusted the speed, initial size of the particles, the colour gradients and the effect of physics upon them.

Shaders

In the late stages of the development our car texture was not looking good at all so I made the executive decision to invest in a third party shader from the asset store and we were able to vastly improve the way that the light reflected off the surface and apply a bump map and fresnel.

Difficulties

- Communication. We had no clear leader and nobody stepped forward to drum the project forward and make sure that the whole team was effectively using their time.
- “Lone wolfing” - The best example of this that I personally experienced is that whilst I created a Game Manager and State Machine which was around 6 scripts long and did tell everyone I had pushed it, it seemed to be completely ignored and a duplicate game manager script was implemented as well.
- Towards the end of the deadline I started being a lot more strict with people who did not turn up to group meetings or did not seem to be pulling their weight. I did not feel like a very nice person doing this but felt like someone had to be the bad guy to get results.

Improvements

I have good team project leadership skills and should not have allowed people to organise themselves, I felt a single strong leader in this case would have made a difference.

In the next month I will step up to this role and make sure that everyone is communicating and pulling their weight.