

Contents

1	Introduction	3
1.1	Aim	4
1.2	Requirement	4
1.3	Report structure	4
2	Background	5
2.1	LPS	5
2.2	Structure design	6
2.3	Traffic Regulation	6
2.3.1	Roundabouts	7
2.3.2	Uncontrolled T-junction	7
2.3.3	cross-junction	9
2.3.4	Junctions controlled by traffic lights	9
2.3.5	Overtaking	10
2.4	LSP.JS, <u>LPS Studio</u> , LPS Cli	11
2.4.1	One car moving on straight line scenario	12
2.4.2	T-junction scenario	13
2.4.3	Multi-junction scenario	16
2.5	swish visualisation	17
2.6	Javascript	20
2.7	Node.js	20
2.8	PIXI.js	20
2.9	Express.js and REST API	20
2.10	MongoDB	20
	Technology	
	overview: 2.2 (ontology predicate)	
3	Implementation	20
3.1	LPS program	20
3.1.1	car moving straight	20
3.1.2	T junction with both narrow lane	20
3.1.3	T junction with one narrow lane and a double lane	20
3.1.4	T junction with two double lanes	20
3.1.5	T junction with two double lanes and traffic lights	20
3.1.6	cross junction without traffic light	20
3.1.7	cross junction with traffic light	20
3.1.8	traffic with restart feature	20
3.1.9	Cars passing on a narrow road	20
3.1.10	Overtaking simple case	20
3.1.11	Overtaking complicated case	20
3.2	Animation.js	20
3.2.1	introduction	20
3.2.2	structure	20
3.2.3	class fields	20
3.2.4	functionality	20
3.3	preprocessing.js	20

3.3.1	introduction	20
3.3.2	structure	20
3.3.3	Document Object Model (DOM)	20
3.3.4	functionality	20
3.4	Demonstration Website	20
3.4.1	structure	20
3.5	front-end design	20
3.5.1	structure	20
3.5.2	API and open source toolkit	20
3.6	back-end hosting	20
3.6.1	introduction	20
3.6.2	structure	20
3.6.3	Express.js	20
3.6.4	MongoDB and mongoose	20
3.6.5	Passport.js	20
3.6.6	AWS EC2 server	20
4	Results and Evaluation relislitc Results and Evaluation	20
4.1	Usability	20
4.2	Efficiency	21
4.3	Re-usability	21
5	Conclusion	21
5.1	challenges faced	21
5.2	Further work	21
6	Review against plan	22
	References	22
	Appendices	24

1 Introduction

LPS stand for Logic Production Systems, it is a "logic-based framework for programming databases and AI (intelligent agent) applications proposed by Kowalski and Sadri"[1].

JavaScript often abbreviated as JS, is a high-level, interpreted scripting language that conforms to the ECMAScript specification

Node.js is

how I am going use javascript to implement the visualisation