

S-Car

Project Engineering

Year 4

Mohamed Otaki – G00346067

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Project Graphic (Optional)

**Declaration**

This project is presented in partial fulfilment of the requirements for the degree of Bachelor of Engineering (Honours) in Software & Electronic Engineering at Galway-Mayo Institute of Technology.

This project is my own work, except where otherwise accredited. Where the work of others has been used or incorporated during this project, this is acknowledged and referenced.

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**Acknowledgements**

Use this section to acknowledge anyone, if you wish to, who might have helped during your project.

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# Summary

The summary should concisely summarise your whole project. Why? What? How? It should communicate:

* + The goal of the project.
  + The scope of the project.
  + The important features of the project.
  + The approach to the project.
  + The main methods & technologies used.
  + What was accomplished.
  + The main conclusions.

The length of the summary should be 200-300 words, or fit well on this page.

# Poster

Poster

# Introduction

Write a short introduction to the report.

Your introduction should state the goal of the project, and the motivation. Outline the scope of the project, i.e. the terms of reference.

You may add, as a final paragraph(s) a description of the layout of your report, however this is not absolutely necessary for short-ish report ( < 50 pages) like this.

Self-Driving Car (S-Car) is a vehicle that can drive between destinations, avoid objects, and take decisions without a human operator. Self-driving cars are a great improvement in the automotive world as they help us to save our environment by eliminating CO2 and use renewable energy. It can help to reduce accidents that are caused by drunk drivers and drivers that use their phones while driving, also it provides high comfort and safety to the driver.

# Background

You should change the title of this section to suit your own project subject. The aim of this section is to introduce to the reader any relevant background information that is required for your project.

You may have multiple ‘background’ sections. Think of any of the questions you had to answer during the research phases of your project – these likely should be addressed in a section like this.

# Project Architecture

Your project architecture diagram should go here. This is an important section, and one most readers of your report will view.

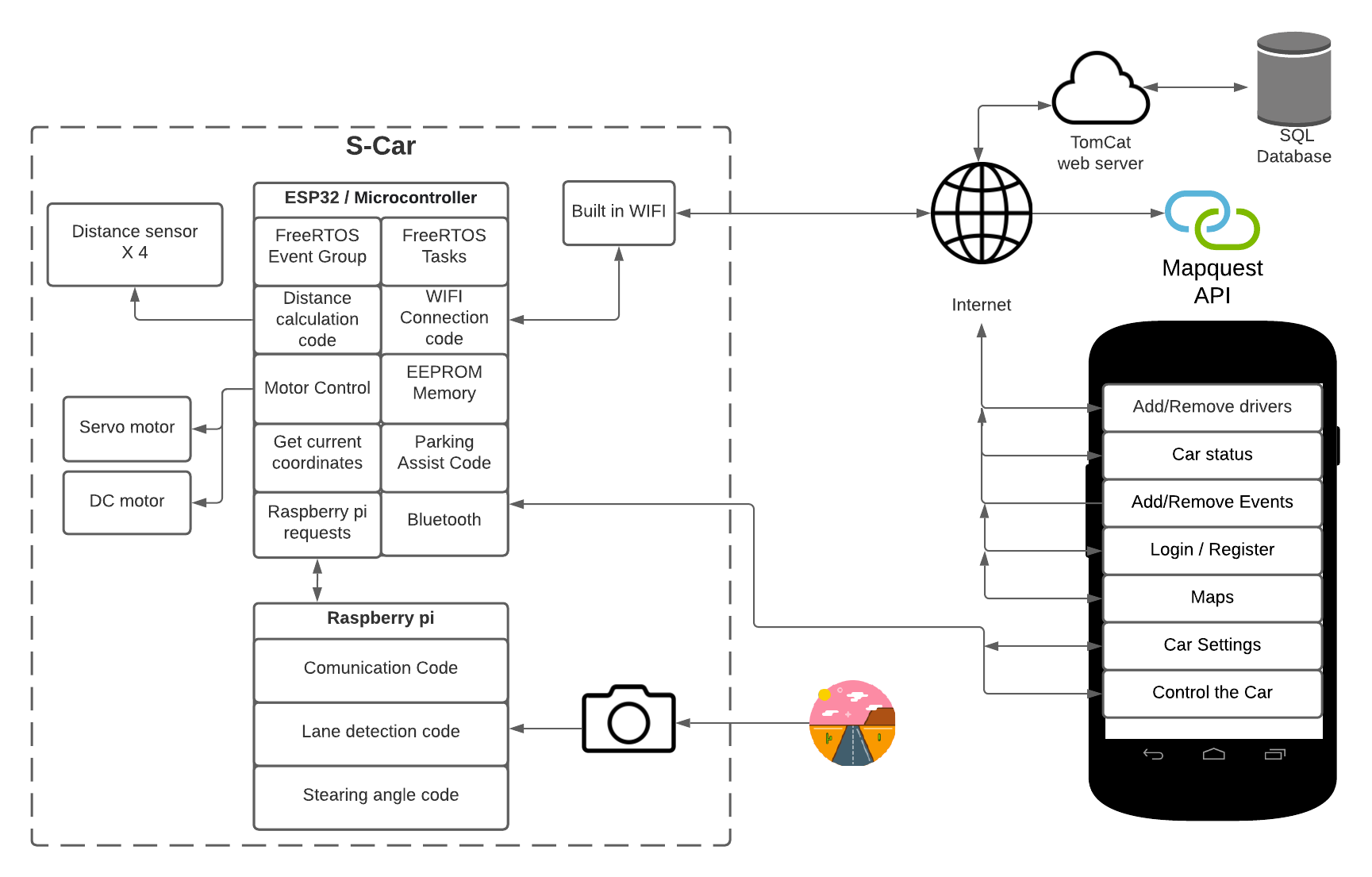
Your diagram should be self-documenting. Use subsequent sections in your report to elaborate on technologies / software / hardware in your diagram.

Figure 4‑1 Architecture Diagram

# Project Plan

# S-Car Features

* Parking assist:
* Autonomous driving
* Android application:
* Auto braking system:

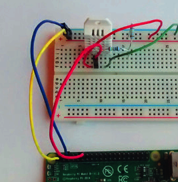
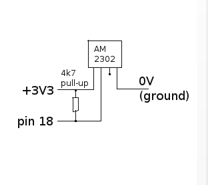
This is an example heading for a section in a project. You choose your sections to suit your project.

## Subheading

This is a subheading, use subheadings to break up a large topic into smaller sections.

Notes on content:

Photographs are not technical diagrams and are not a good substitute for professional technical diagrams. Use photographs to enhance a report, but not as a replacement for diagrams.



V

Figure 6‑2 A photograph is not a replacement for a circuit diagram

In describing software, you need diagrams and/or summaries of software design & layout. It is not sufficient to just paste some code. You should describe what your code is designed to do, in English. If you decided to put your code in functions or libraries or objects, describe this architecture. One good layout is to include a snippet(s) of code alongside an explanation. You do not have to explain every part of your code, pick the important parts.

Write out any mathematical equations or calculations that are important in your project and explain them.

Include details of any major problems or challenges you encountered in an area, and how you solved them.

IEEE referencing style is recommended a the default style to choose, however if you are familiar with a different referencing style then you can use that.

When you need to reference add a citation in the relevant sentence, usually at the end, before the full stop [1]. Then have this numbered citation referenced in the list of references at the end of the document.

# Core Board – ESP32

# Android Application

S-Car application was built to help the owners to have full control of the car using their phones. The application allows the owners to add additional drivers that want to barrow the car for specific period of time, the owner can specify the period while adding the additional driver. The additional driver will not have access to the car when the specified period is passed.

The owners can also add, update, or remove events using the S-Car application. This feature will allow the car to turn on before the event happens in few minutes to get the car ready and to get the destination.

have easy access to the car, manage the car settings and control it through Bluetooth connection.

The S-Car application was built using android studio and Java as the main coding language.

## Android Application Features

* Add/Remove drivers
* Add/Remove events
* Live sensors update
* Maps

# Conclusion

Write a short conclusion. What is the outcome of the project? Perhaps you have a product prototype, or some results, or a demonstratable system.

Do not use your conclusion to tell the reader what you might have done if you had more time, but keep it focussed on what you actually have done. You can mention future opportunities for further development of the work, but keep this part short.

# References

[1] Digilent. *Basys 3* Reference [Online]. Available: <https://reference.digilentinc.com/basys3/refmanual>

[2] P. J. Ashenden. *Digital Design (Verilog): An Embedded Systems Approach Using Verilog*. Burlington: Morgan Kaufmann, 2007.

[3] M. Lynch, “Combinational and Sequential Logic with Verilog & Xilinx Vivado” [Online], 2020. Available: <https://learnonline.gmit.ie>.

[4] M. Lynch, “FPGA Stopwatch Project Source Code” [Online], 2020. Available: <https://learnonline.gmit.ie>.

[4].IEEE.Signal.prosesing.socity.”signal processing for 5g”,.youtube,.

# Appendix