Chameleon

Smarter World

Chameleon

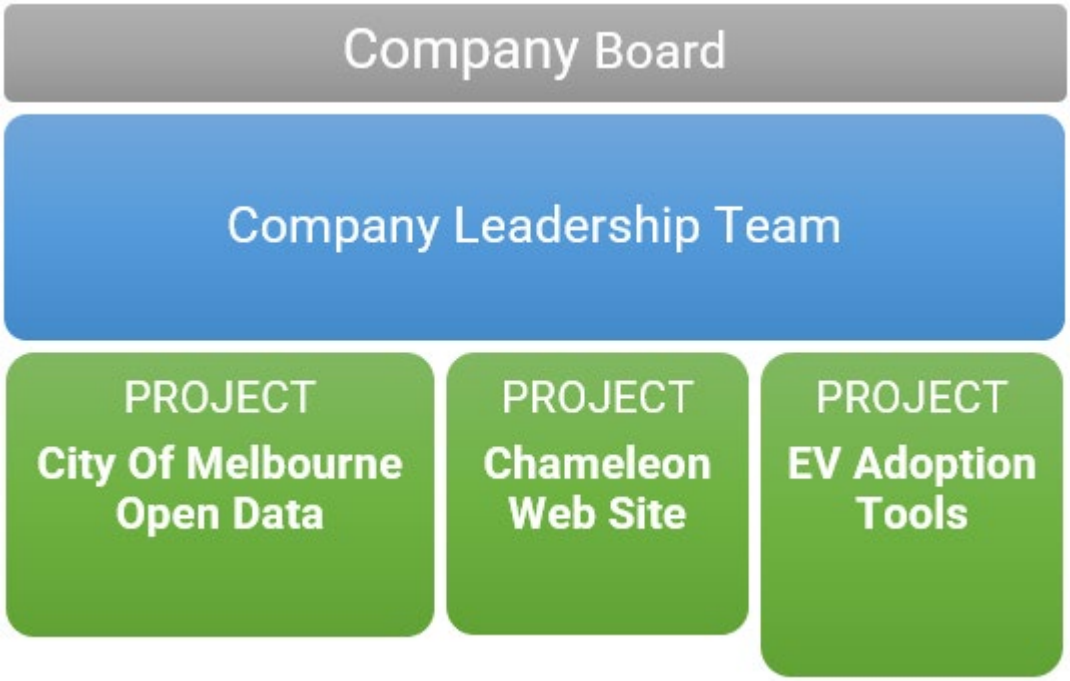
Company Objectives & Structure

Deakin Capstone Units

Task 2.1P

Chameleon
Smarter World

Company Structure



T1 2022 Objectives

- Establish a website presence for Chameleon
- Research, design and develop minimum viable products (MVP) for commercially viable EV Adoption Tools
- Enhance the Melbourne Open Data Playground to support City of Melbourne's smart cities goals and aspirations

Executive Summary

OUR MISSION

"Given the complexity of energy application needs today, IoT systems are being designed to address a wide variety of existing problems.

In Chameleon, our mission is to research, create, test, document and deploy IoT-based solutions to enhance life through the application of smart city technologies including: the building of smarter cities, homes, transportation, and energy management systems."

There are 3 divisions within the company, focusing on the 3 key areas of strategic importance:

- City of Melbourne Open Data
- Chameleon Website
- Electric Vehicle (EV) Adoption Tools

Both the open data project and the EV adoption tools leverage data sets that are created using IoT-based sensors and as such, fit into the goals of the company. The Chameleon website articulates the goals of the company and provides a visible presence.

The goals of the City of Melbourne Open Playground are to create a toolset to assist non-technical users in understanding some of the challenges that open data in the City of Melbourne can help to solve, along with useful, step by step examples.

The EV adoption tools division will be focusing on 3 projects. These projects will all related to building out tools to help drive EV adoption and/ or solve challenges associated with building out EV infrastructure.

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Valeh Moghaddam

Director

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Leadership Team

The company board consists of the following key personnel:

- Valeh Moghaddam
- Chathu Ranaweera
- Seng Loke

Valeh Moghaddam is the acting director and key point of contact for the leadership team on a day-to-day basis.

The leadership team consists of the students:

Student ID	Full Name	Junior/Senior	UG/PG	Team Group/Role	Project/Team Lead?	Project
221310579	Angela Corriero	Junior	Postgrad	Leadership Support		Chameleon
220622865	Van Tri Nguyen	Senior	Undergrad	Leadership Support		Chameleon
220544661	Glenn Richmond	Senior	Postgrad	Project Leader	Y	EV Adoption Tools
220618314	Nabil Francis	Senior	Postgrad	Project Leader	Y	Chameleon Website
220541733	Steven James Tuften	Senior	Postgrad	Project Leader	Y	City Of Melbourne Open Data

Trimester Goals and Objectives

- Create an initial version of the Chameleon company website
- Implement additional use cases and perform a cloud platform migration for City of Melbourne Open Data Project
- Establish the framework, development processes, DevOps and possibly an early MVP for the mobile app
- Provide an initial MVP for the EV business case portal
- Perform initial research and create an early MVP for the EV location recommendation engine

Company Structure and Projects Overview

In our first trimester, Chameleon will be running the following three concurrent projects that, together, support the mission and objectives of the company.

- City of Melbourne Open Data – Promoting smart cities open data adoption
- Chameleon Web Site – A platform for showcasing and promoting Chameleon's activities
- EV Adoption Tools – A variety of tools to support the adoption of EV adoption by the Australian community

Chameleon is run by a Company leadership team comprising one Board Director and a student leadership team. This team coordinates whole of company initiatives and ensures projects are delivering on the company mission and objectives. The Company Leadership team reports to the Board of Directors.

Some members of the Student Leadership team are allocated as leaders of each of the projects with the remaining student leaders providing vitally important administrative and executive support functions for the company.

Figure 1 illustrates the company structure at a high level with members of each team listed in subsequent sections of this document and Figure 2 illustrates the typical structure of a project team its relationship to the Leadership team.

Each project may be comprised of multiple teams providing a different set of skills in support of the project's deliverables. Each team will have a designated team leader accountable for that teams' deliverables.

The project leader will be supported by an assistant project leader who can assist with project management, team communications and meeting facilitation. Assistant project leaders and team leaders are also candidates for future leadership roles in the subsequent trimester.

Figure 1: Chameleon Company Structure

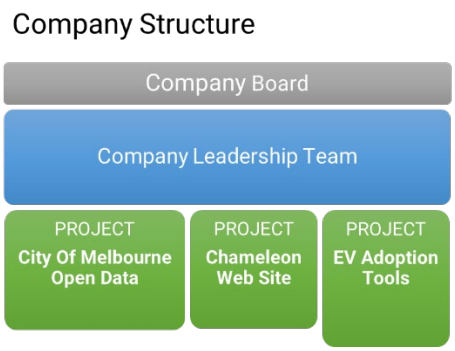
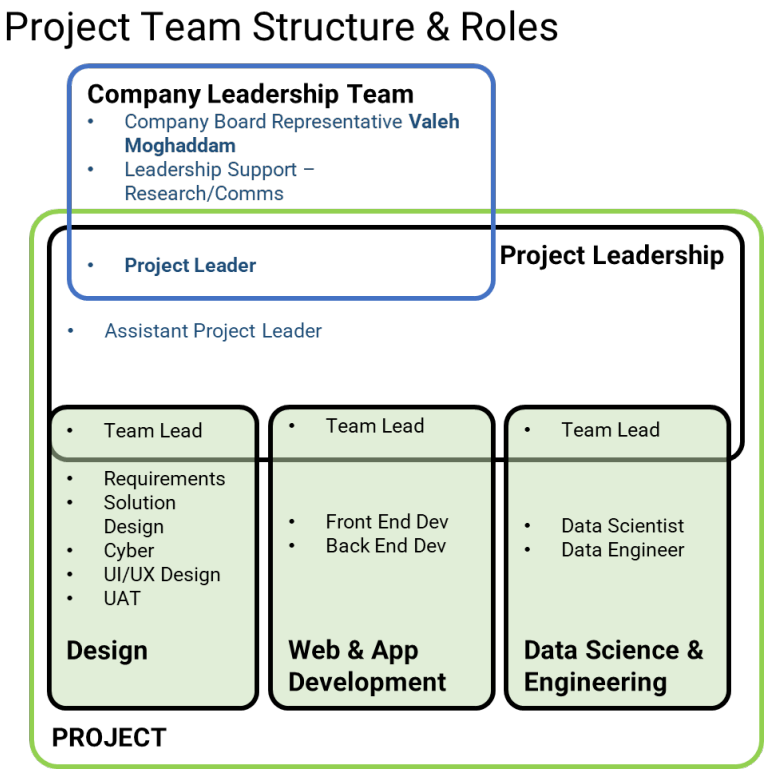


Figure 2: Chameleon Project Team Structure



Project 1: City of Melbourne Open Data

Overview, Goals, and Objectives

The City of Melbourne has been an Australian leader in Open Data since 2014. The City of Melbourne initiated this project with Deakin to support greater use of their Open Data by businesses, researchers, and software developers. Open Data is a component of their smart cities' strategy.

This project delivers an education portal which demonstrates how to leverage Open Data using real world scenarios that may be of interest to industry, government, and researchers. Its long-term goal is to increase the usage of City of Melbourne Open Datasets and drive increased investment across the City of Melbourne council area.

Aims for Trimester

This semester the project will aim to become integrated into the Chameleon project by re-focusing its deliverables on Smart Cities Open Data while delivering additional use cases of value to City of Melbourne businesses and residents.

Deliverables

The short term (trimester) deliverable will be:

- Add additional data science use cases to the Melbourne Open Data Playground portal and GitHub Repo.
- Migrate the Melbourne Open Data Playground portal from AWS to Google Cloud Platform (GCP)
- Ensure the Melbourne Open Data Playground portal can run on mobile devices
- Make Minor cosmetic improvements to the Melbourne Open Data Playground portal

Longer term goals include:

- Preparing the Melbourne Open Data Playground portal and GitHub repository for use by the public
- Migrating the Pedestrian data use cases and Jupyter notebooks to support a new data provider
- Migrating the Open Data access API from SOCRATA to a new platform

Project Members

Student ID	Full Name	Junior/Senior	UG/PG	Team Group/Role	Project/Team Lead?
220541733	**Steven James Tuften**	**Senior**	**Postgrad**	**Project Leader**	**Y**
217285498	**Mollie Fernandez**	**Junior**	**Undergrad**	**Assistant Project Leader**	**Y**
217495571	**Alex V.A. Vuong**	**Senior**	**Postgrad**	**Data Science & Engineering**	**Y**
220563849	Mark Brooksby	Senior	Postgrad	Data Science & Engineering	
220532657	Julian Cape	Junior	Postgrad	Data Science & Engineering	
400150369	Bree Margaret McLennan	Junior	Postgrad	Data Science & Engineering	
221047172	Nitish Kumar Neelala Harish	Junior	Postgrad	Data Science & Engineering	
220616385	Brendan Patrick Richards	Junior	Postgrad	Data Science & Engineering	
221153273	Anugra Sara Thomas	Senior	Postgrad	Data Science & Engineering	
215127684	Ryan Daniel Waites	Junior	Undergrad	Data Science & Engineering	
221308586	Pramodya Senanayaka	Junior	Postgrad	Data Science & Engineering	
217284769	**Anthony Todaro**	**Senior**	**Undergrad**	**Design**	**Y**
218271294	Jacob Djaelani	Junior	Undergrad	Design	
218673691	Imani Maina	Junior	Undergrad	Design	
218268634	Harrison Corin Padraic Murphy	Junior	Undergrad	Design	
219362178	Bansi Baiju Patel	Junior	Undergrad	Design	
217587577	Kishen Makanji Patel	Senior	Undergrad	Design	
214335826	Bradie Robinson	Senior	Postgrad	Design	
219302799	**Janitha Thushara Nilaweera Patabandige**	**Junior**	**Postgrad**	**Web & App Development**	**Y**
221023977	Muhammad Sohaib Bin Kashif	Junior	Postgrad	Web & App Development	
219365506	Lakshmi Meghana Kethiri	Senior	Postgrad	Web & App Development	
218296596	Michael John Leen	Junior	Undergrad	Web & App Development	
218341765	Shlomi Moreh	Junior	Postgrad	Web & App Development	
219273805	Yi Yang (Eric) Yu	Junior	Undergrad	Web & App Development	
220614444	Anno Gomes	Senior	Undergrad	Web & App Development	
221070031	Tianqi Zhou	Junior	Postgrad	Web & App Development	
220236048	Matthew Hall	Junior	Undergrad	Web & App Development	

Project 2: Chameleon Website

Overview, Goals, and Objectives

Like any other company, the Chameleon company requires a website to be its digital public facing space. The main goal of the website is to promote Chameleon's projects, products, and the services that it provides. As the project implementation progresses additional features and functionalities will be added such as blogs, events calendar, and a clients' area.

Aims for Trimester

Being a new project that is built from scratch, the project team aims to deliver the infrastructure (Hosting environment, code repositories, deployment pipelines), the web development framework (SDLC process, Dev tools) and the handover document to be used in the future trimesters.

Deliverables

This trimester's short-term deliverables include:

- Identify the hosting infrastructure and set up the DevOps pipelines
- Identify the web development tools and SDLC processes to follow
- Propose an initial website layout and style
- Include an initial list of standard pages (including links to other Chameleon projects) and start working on their contents

The future trimesters long term deliverables include:

- Finalise the list of pages
- Implement a SEO strategy to rank the website higher in the web search engines
- Implement a web tracking mechanism and a web traffic analysis
- Add a blogging engine
- Add an events calendar
- Add a clients' area for project collaboration with various levels of user access

Project Members

Student ID	Full Name	JuniorSenior	UG/PG	Team Group/Role	Project/Team Leader?
220618314	**Nabil Francis**	**Senior**	**Postgrad**	**Project Leader**	**Y**
217072092	**Nykolai Garcia McHerron**	**Junior**	**Undergrad**	**Assistant Project Leader**	**Y**
220077269	**Ayushi Natalie Alujjage**	**Junior**	**Undergrad**	**Design**	**Y**
221337514	Nathan Cahill	Junior	PostGrad	Design	
220381653	Jack Hagen	Junior	Undergrad	Design	
220490637	Sangjun Kim	Junior	Undergrad	Design	
220102998	Nikhil Nikhil	Junior	Undergrad	Design	
219204947	Tejal Girish Ranade	Junior	Undergrad	Design	
218430879	Paulina Katarzyna Wesolowska	Junior	Undergrad	Design	
220457523	Zhenyu Ye	Junior	Undergrad	Design	
219449118	Yinfei Zhou	Senior	Undergrad	Design	
220068066	Uchechukwu Ajoku	Junior	Postgrad	Design	
216258809	Karanbir Singh Bhatti	Senior	Undergrad	Design	
220599451	**Ramanayake Arachchige Don Ruwanganath Ramanayake**	**Senior**	**Postgrad**	**Web & App Development**	**Y**
219222529	Lachlan James Exton	Junior	Undergrad	Web & App Development	
220460399	Xinyu Ji	Junior	Undergrad	Web & App Development	
221418332	Wensong Jing	Senior	Postgrad	Web & App Development	
219352504	Bhavishya Pun	Junior	Undergrad	Web & App Development	
220240516	Julian Ryan	Junior	Undergrad	Web & App Development	
220462328	Kong Chenyu	Junior	Undergrad	Web & App Development	
217438109	Dasun Kodikara M	Junior	Undergrad	Web & App Development	
218663803	Surpeet Singh	Junior	Undergrad	Web & App Development	
218429514	Shakwat Hossein Limon	Junior	Undergrad	Web & App Development	

Project 3: EV Adoption Tools

Overview, Goals, and Objectives

The EV Adoption Tools project aims to drive increased adoption of Electric Vehicles (EVs) in Australia.

This will help drive reduced dependence on fossil fuels, lower greenhouse gas emissions and have a positive impact on the environment and global weather events.

EV adoption tools will help EV owners better plan their trips by identifying optimal EV charging stations as waypoints on their journey.

The **Identify Best EV Locations based on Big Data** sub-project will support enterprises looking to establish charging stations in the optimal location based on user demand, traffic, EV owner density and many other data points sourced from government and industry.

Aims for Trimester

The goals for this trimester will be:

- Set up the framework, development processes, DevOps, and possibly an early MVP, for the mobile app platform
- To provide an initial MVP for the EV Locate a Socket app
- To perform initial research and create an early MVP for the EV location recommendation engine

Deliverables

This project has two deliverables running as sub-projects:

- Sub-Project/Deliverable 1: Locate a Socket
- Sub-Project/Deliverable 2: Identify Best EV Locations based on Big Data

All projects will require research, planning and design activities to be continued on this trimester with finalisation of each carried out in subsequent trimesters.

Project Members

Student ID	Full Name	JuniorSenior	UG/PG	Team Group/Role	Project/Team Lead?
220544661	**Glenn Richmond**	**Senior**	**Postgrad**	**Project Leader**	**Y**
222084667	**Mohamed Dallol**	**Junior**	**Postgrad**	**Assistant Project Leader**	**Y**
216095588	**Haley Holloway**	**Senior**	**Undergrad**	**Data Science & Engineering**	**Y**
220267679	Billie Jack Hancock	Junior	Undergrad	Data Science & Engineering	
219213881	Matthew Robert Iredale	Junior	Undergrad	Data Science & Engineering	
221045868	Rahul Kumar	Senior	Postgrad	Data Science & Engineering	
221430794	Mei Liu	Junior	Postgrad	Data Science & Engineering	
218637524	Disha Mann	Senior	Undergrad	Data Science & Engineering	
219605515	Truong Giang Nguyen	Junior	PostGrad	Data Science & Engineering	
221459705	Nidhi Tapankumar Patel	Junior	Postgrad	Data Science & Engineering	
600022742	Sarah Bullen	Senior	Postgrad	Data Science & Engineering	
219285112	**Sarishti Sarishti**	**Senior**	**Undergrad**	**Design**	**Y**
221212001	Richard Adams	Junior	Undergrad	Design	
220252511	Yuvraj Kapoor	Junior	Undergrad	Design	
220421563	Nihaal Sachdev	Junior	Undergrad	Design	
218292859	Samuel James Spice	Junior	Undergrad	Design	
219020285	**Harleen Kaur**	**Senior**	**Undergrad**	**Web & App Development**	**Y**
222057256	Kussay Al-Zubaidi	Junior	PostGrad	Web & App Development	
219051815	Muhammad Ahmed Arif	Junior	Postgrad	Web & App Development	
220462328	Chenyu Kong	Junior	Undergrad	Web & App Development	
219179817	Hamish Glover	Junior	Undergrad	Web & App Development	
218062706	Muhammad Rehan Qureshi	Junior	Undergrad	Web & App Development	
219314678	Abhiishekh Avula	Senior	Undergrad	Web & App Development	

Sub-Project/Deliverable 1: Locate a Socket

Summary

The goal of this project is to be able to design and implement a mobile app (Android and IOS) to help consumers identify a nearby charging location. While there are existing apps on the market that offer this functionality (i.e., Chargefox), we believe that we can offer an app that differentiates itself from those apps by designing features that add value beyond just finding the charging station.

A few examples of what the app may offer in addition to the core function of locating a stock include:

- Providing additional information and filtering of stations based on type (EV vs hydrogen, for example), information on the source of the power (direct solar, grid powered, gas, diesel etc)
- Providing a full journey planner for longer trips that optimizes for reducing charge time, cost, and environmental impact along the route
- Ability to incorporate your usage data with current fuel prices, cost of maintenance etc and provide an indication of real savings for running the vehicle

Note that Chargefox does also offer the ability to pay for charging via the app, so this may be something to consider in the architecture of the platform.

Aims for Trimester

The goal for this trimester will be:

- To create branding and user experience for the mobile app
- To create the process for capturing and processing updated EV location data
- To create an MVP mobile app that helps end users to identify nearby EV locations
- To be able to deploy this app on Android at a minimum
- To create the back-end framework to capture the EV location data

Sub-Project/Deliverable 2: Identify Best EV Locations based on Big Data

Summary

The goal of this sub-project is to use community data (population, traffic, transit etc) to predict where would be the most mutually beneficial place to install new charging stations so that:

- Stations are well located in relation to other charging stations
- People have other reasons to stop there (landmark or facility that people spend time at)
- Residents benefit from the installation (business see increased foot traffic & residents are spared extra traffic)
- Existing or planned infrastructure can accommodate the stations (power requirements)

This project will primarily be a data science project that will include:

- Identifying data sets that can support this decision-making process. This will include a research process that will determine whether the required data sets are available
- The outcomes here will be creating a dashboard and possibly an application or machine learning model that provides these recommendations