Deakin University

Capstone Team Project (B)

OnTrack Submission

Company Objectives and Structure

Submitted By:
Mollie Fernandez
fernandezm

Tutor:
Seng Loke

Group Members:

Produced by Doubtfire

mskashif	Muhammad Sohaib Bin	Kashif	
lexton	Lachlan James	Exton	
jdjaelani	Jacob	Djaelani	
jcryan	Julian	Ryan	
ykapoor	Yuvraj	Kapoor	
jhagen	Jack	Hagen	
dtkodika	Dasun tharaka	Kodikara munasinghege	
surpreetsingh	Surpreet Singh	Surpreet Singh	
aalujjage	Ayushi Natalie	Alujjage	
ewe	Nikhil	Nikhil	
tranade	Tejal Girish	Ranade	
hcmurphy	Harrison Corin Padraic	Murphy	
sachdevn	Nihaal	Sachdev	
vmaina	Imani	Maina	
bbpatel	Bansi Baiju	Patel	
bhancock	Billie Jack	Hancock	
jixin	Xinyu	Ji	
yezhenyu	Zhenyu	Ye	
kongc	Chenyu	Kong	
fernandezm	Mollie	Fernandez	
shlimon	Shakwat Hossain	Limon	
lrowell	Leigh	Rowell	
rdwaites	Ryan Daniel	Waites	
sskim	Sangjun	Kim	
miredale	Matthew Robert	Iredale	
yyyu	Yi Yang	Yu	
nmcherro	Nykolai Garcia	McHerron	
ntpatel	Nidhi Tapankumar	Patel	
maarif	Muhammad Ahmed	Arif	
gpt	Mei	Liu	
s219302799	Janitha Thushara	Nilaweera Patabandige	
bprichards	Brendan Patrick	Richards	
smoreh	Shlomi	Moreh	
jcape	Julian	Cape	
acorriero	Angela	Corriero	
cahilln	Nathan	Cahill	
bmmc	Bree margaret	Mclennan	
mleen	Michael John	Leen	
hfglover	Hamish	Glover	
zhoutia	Tianqi	Zhou	
kpetrusic	Kale Joseph	Petrusic	
uajoku	Uchechukwu Diebiye	Ajoku	
aoall	Abosede oluwaseun	Alli	
sjspice	Samuel James	Spice	
mpeerzada	Muhammad Hassan	Peerzada	
karuppiahvi	Vineeth	Karuppiah	

July 26, 2022

Chameleon

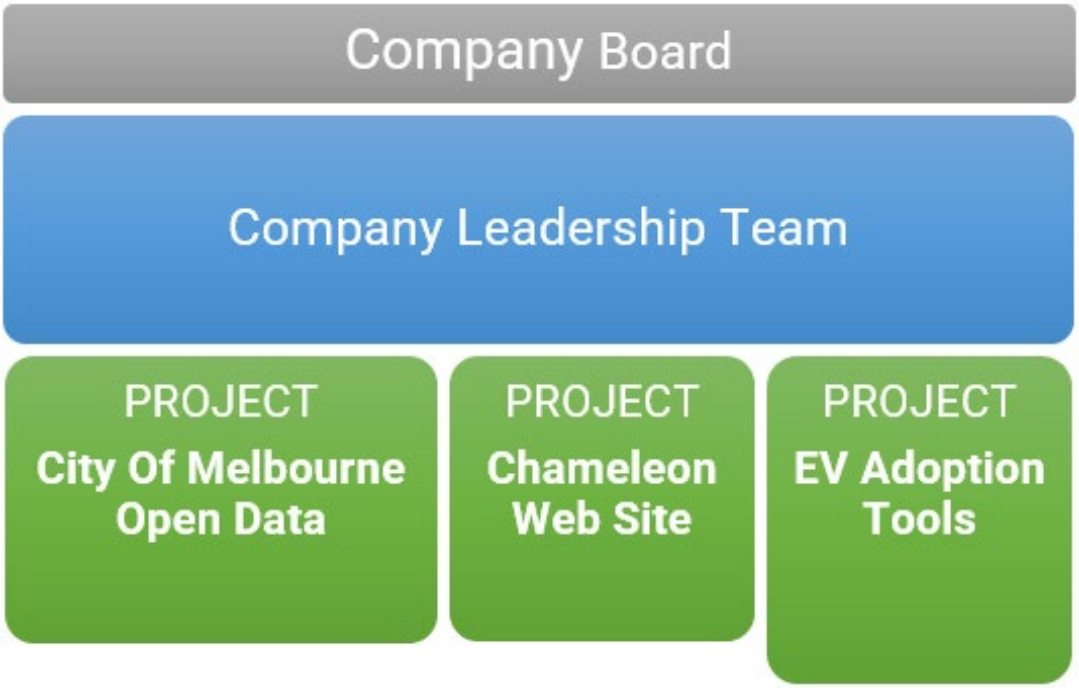
Smarter World

Chameleon

Company Objectives and Structure

Task 2.3P

Company Structure



T2 2022 Objectives

- Continue to develop the Chameleon Website capabilities to be optimised for mobile access and create a staff portal for Chameleon staff to make blog post and manage website user accounts.
- 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.

_____

Seng Loke

Director

Table of Contents

LEADERSHIP TEAM **1**

TRIMESTER GOALS AND OBJECTIVES **1**

COMPANY STRUCTURE AND PROJECTS OVERVIEW **1**

PROJECT 1: CITY OF MELBOURNE OPEN DATA **3**

Overview, Goals, and Objectives 3
Aims for Trimester 3
Deliverables 3
Project Members 4

PROJECT 2: CHAMELEON WEBSITE **5**

Overview, Goals, and Objectives 5
Aims for Trimester 5
Deliverables 5
Location of project resources 5
Project Members 6

PROJECT 3: EV ADOPTION TOOLS **7**

Overview, Goals, and Objectives 7
Aims for Trimester 7
Deliverables 7
Project Members 7
Sub-Project/Deliverable 1: Locate a Socket 8
Sub-Project/Deliverable 2: Identify Best EV Locations based on Big Data 9

Leadership Team

The company board consists of the following key personnel:

- Seng Loke
- Valeh Moghaddam

Seng Loke 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 following students:

Student ID	Full Name	Junior/Senior	UG/PG	Project	Project/Team Lead?
217072092	Nykolai Mcherron	Senior	Undergrad	Chameleon Website	Project Lead
220077269	Ayushi Natalie Alujjage	Senior	Undergrad	Chameleon Website	Team Lead
218429514	Shakwat Hossain Limon	Senior	Undergrad	Chameleon Website	Team Lead
217285498	Mollie Fernandez	Senior	Undergrad	City of Melbourne	Project Lead
220005641	Bose Alli	Junior	Postgrad	City of Melbourne	Assistant Project Lead
218296596	Michael John Leen	Senior	Undergrad	City of Melbourne	Team Lead
400150369	Bree Margaret McLennan	Senior	Postgrad	City of Melbourne	Team Lead
220532657	Julian Cape	Senior	Postgrad	City of Melbourne	Co-Team Lead
219179817	Hamish Finnley Glover	Senior	Undergrad	EV Adoption Tools	Evoleon Project Lead
214490138	Leda Scott	Junior	Undergrad	EV Adoption Tools	Evoleon Assistant Project Lead
219213881	Matthew Robert Iredale	Senior	Undergrad	EV Adoption Tools	Best EV Locations Project Lead

Trimester Goals and Objectives

- Continue to develop the Chameleon company website
- Implement additional use cases and rebranding for the City of Melbourne Open Data Project
- Begin to build and create the base for the Evoleon mobile app
- Provide an initial MVP for the EV business case portal
- Create an early MVP for the EV location recommendation engine

Company Structure and Projects Overview

In trimester 2 2022, 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,

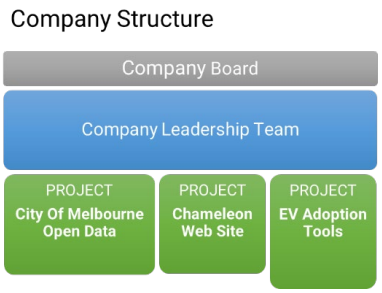
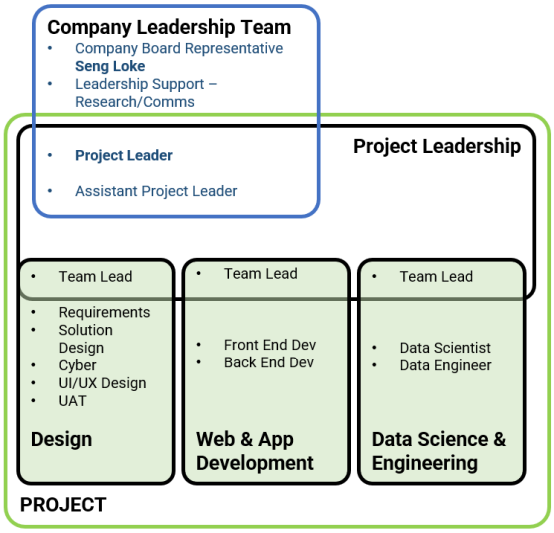


Figure 2: Chameleon Project Team Structure



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 company 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) deliverables were:

- Create additional data science use cases to the Melbourne Open Data Playground portal and GitHub Repo.
- Ensure the Melbourne Open Data Playground portal can run on mobile devices
- Make Minor cosmetic improvements to the Melbourne Open Data Playground portal
- Implement the remaining use cases designed in 2022 trimester 1 into the live site
- Implement design changes suggested in trimester 1
- Researching & Rebranding the Open Data resources for easier recognition and accessibility
- Migration from flat file data sources to a relational database for improved search functions
- Implement Staging Pipeline & Web-application for more streamlined Development and Integration

Longer term goals included:

- 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
- Implementation and Integration of updated designs and features

Location of project resources

- Melbourne Open Data Playground website
- Melbourne Open Data Playground GitHub Repository
- City of Melbourne MS Teams Channels Files
- Melbourne Open Data Playground Code GitHub Repository
- Chameleon Handover Documentation GitHub Repository
- City of Melbourne Trello Board
- City of Melbourne T1 2022 Project Showcase Video

Project Members

Student ID	Full Name	Junior/Senior	UG/PG	Team Group/Role
217285498	**Mollie Fernandez**	**Senior**	**Undergrad**	**Project Leader**
220005641	**Abosede Alli**	**Junior**	**Postgrad**	**Assistant Project Leader**
400150369	**Bree Margaret McLennan**	**Senior**	**Postgrad**	**Data Science & Engineering Team Leader**
220532657	**Julian Cape**	**Senior**	**Postgrad**	**Data Science & Engineering Co Leader**
216019732	Hannah Smith	Junior	Postgrad	Data Science & Engineering
221377945	Jack Pham	Junior	Undergrad	Data Science & Engineering
215127684	Ryan Daniel Waites	Senior	Undergrad	Data Science & Engineering
220616385	Brendan Patrick Richards	Senior	Postgrad	Data Science & Engineering
220554762	Andrew Tilling	Junior	Postgrad	Data Science & Engineering
220410831	Barkha Javed	Junior	Postgrad	Data Science & Engineering
218292859	**Samuel Spice**	**Senior**	**Undergrad**	**Design Team Co Leader**
220580602	**Stephen Brackenridge**	**Junior**	**Undergrad**	**Design Team Co Leader**
218271294	Jacob Djaelani	**Senior**	Undergrad	Design
219595935	Muhammad Hassan Peerzada	**Junior**	Postgrad	Design
218673691	Imani Maina	Senior	Undergrad	Design
218268634	Harrison Corin Padraic Murphy	Senior	Undergrad	Design
219362178	Bansi Baiju Patel	Senior	Undergrad	Design
218296596	**Michael John Leen**	**Senior**	**Undergrad**	**Web & App Development Team Leader**
221023977	**Muhammad Sohaib Bin Kashif (Sammy)**	**Senior**	**Postgrad**	**Web & App Development Co Leader**
219297735	Caleb Webb	Junior	Undergrad	Web & App Development
218341765	Shlomi Moreh	Senior	Postgrad	Web & App Development
221070031	Tianqi Zhou	Senior	Postgrad	Web & App Development
219273805	Yi Yang Yu (Eric)	Senior	Undergrad	Web & App Development
222296654	Marcel Gebara	Junior	Undergrad	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

After the foundations for the website were built in Trimester 1, in this trimester we aim to optimise the website for mobile access, create a blog section and begin laying the foundations for a Chameleon Staff Portal, which will allow members of the Chameleon Company to make and manage blog posts, calendar events and manage client's user accounts.

Deliverables

This trimester's short-term deliverables include:

- Optimise website for mobile access
- Build a blogging section
- Create the front end for staff portal
- If time allows, begin creating back end for staff portal

The future trimesters long term deliverables include:

- Chameleon Staff Portal features
    - Set up staff accounts
    - Manage client's user accounts
    - Create client area that allows them to view Chameleons project progress, updates and other services
    - Allow Chameleon staff to edit the website pages text content, making them dynamic
    - Manage blog, client reviews & calendar

- Implement a SEO strategy to rank the website higher in the web search engines
- Implement a web tracking mechanism and a web traffic analysis

Location of project resources

The resources are spread in a few different locations:

- The Chameleon Website
- The Chameleon Website Project MS Teams channel
- The Project Github Handover repository
- The Project Trello Board
- The Project Backend Github repository
- The Project Frontend Github repository
- The Chameleon T1 2022 Website showcase video

Project Members

ID	NAME	Jun/ Sen	Degree	Role
217072092	**Nykolai Garcia McHerron**	**Senior**	**Undergrad**	**Project Leader**
219425396	**Kinshuk Jain**	**Junior**	**Undergrad**	**Assistant Project Leader**
220077269	**Ayushi Natalie Alujjage**	**Senior**	**Undergrad**	**Design Team Leader**
218429514	**Shakwat Hossain Limon**	**Senior**	**Undergrad**	**Web & App Development Team Leader**
221337514	Nathan Cahill	Senior	PostGrad	Design
220102998	Nikhil Nikhil	Senior	Undergrad	Design
220490637	Sangjun/Samual Kim	Senior	Undergrad	Design
219204947	Tejal Girish Ranade	Senior	Undergrad	Design
218360746	Muhammed Haris Saeed	Junior	Undergrad	Design
220079655	Pratham	Junior	Undergrad	Design
220462239	Aye Moh Shwe	Junior	Undergrad	Design
220381653	Jack Hagen	Senior	Undergrad	Web & App Development
220271708	Mathew Ho	Junior	Undergrad	Web & App Development
220240516	Julian Ryan	Senior	Undergrad	Web & App Development
219222529	Lachlan James Exton	Senior	Undergrad	Web & App Development
220460399	Xinyu Ji	Senior	Undergrad	Web & App Development
217438019	Dasun Tharaka Kodikara Munasinghege	Senior	Undergrad	Web & App Development
218663803	Surpreet Singh	Senior	Undergrad	Web & App Development
220457523	Zhenyu Ye	Senior	Undergrad	Web & App Development
219220123	Jason Hu	Junior	Undergrad	Web & App Development
218517597	ChenXuan Hao	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:

- To expand on the mobile app MVP, implementing features designed in the previous trimester (T1 2022)
- 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	Junior/Senior	UG/PG	Team Group/Role
219179817	**Hamish Glover**	**Senior**	**Undergrad**	**Evoleon Project Leader**
214490138	**Leda Scott**	**Junior**	**Undergrad**	**Evoleon Assistant Project Leader**
218062706	Muhummad Qureshi	Junior	Undergrad	Evoleon Design
221071029	Jasdeep Singh	Junior	Undergrad	Evoleon Design
218556009	Shafiq Jahangir	Junior	Undergrad	Evoleon Design
220421563	Nihaal Sachdev	Senior	Undergrad	Evoleon Design
220252511	Yuvraj Kapoor	Senior	Undergrad	Evoleon Design
220267679	Billie Jack Hancock	Senior	Undergrad	Evoleon Data Science
221459705	Nidhi Tapankumar Patel	Senior	Postgrad	Evoleon Data Science
220224202	Abraham Awonusi	Junior	Undergrad	Evoleon Web Application Development
219051815	Muhammad Ahmed Arif	Senior	Postgrad	Evoleon Web Application Development
220462328	Chenyu Kong	Senior	Undergrad	Evoleon Web Application Development
219302799	Janitha Patabandige	Senior	PostGrad	Evoleon Web Application Development
218673691	Virg Mania	Senior	Undergrad	Evoleon Web Application Development
219213881	**Matthew Robert Iredale**	**Senior**	**Undergrad**	**Best EV Locations Project Lead**
219309149	**Leigh Rowell**	**Senior**	**Undergrad**	**Best EV Locations Team Co Lead**
221430794	**Mei Liu**	**Senior**	**Postgrad**	**Best EV Locations Team Co Lead**
219223276	Kale Petruisic	Senior	Undergrad	Best EV Locations Team
220559183	Onawaree Rattanathon	Junior	Postgrad	Best EV Locations Team
219272783	Ezekiel Griffin	Junior	Undergrad	Best EV Locations Team
221302256	Nevil Sukhadiya	Junior	Postgrad	Best EV Locations Team

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 application 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 socket 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:

- Add page switching functionality to app navigation menu
- Implement clickable charging location icons onto the EV charging station map, with details such as charge speed and available/total vehicle capacity to assist the end user's in choosing an appropriate station.
- Arrange charge station data (from a variety of sources) in a consistent format that is readable by the application.
- Design new features, or expand on previous designs, to inform future development

Location of project resources

- Evoleon App play store listing (use evoleonapp@gmail.com to access as admin)
- Github Repository
- Github Build Pipelines
- Evoleon Expo Project (React Native Build Pipeline & submission to play store)
- Trello Board

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

Summary

Continuing from T1 2022 the goal of this sub-project remains the same, utilizing community data specifically; political, economic, commercial, and traffic (pedestrian/vehicle) to predict where the most mutually beneficial place to install new charging stations so that:

- Stations are well located in relation to other charging stations to avoid competition.
- People are enticed to stop to charge rather than forced, nearby entertainment (landmarks/restaurants)
- Local economy benefits, new station installation attracts more visitors thus more customers for nearby businesses
- Strategically placed stations to encourage EV users to take different routes and minimise traffic congestion
- Existing or planned infrastructure can accommodate the stations (power and land requirements)

This project primarily involves Data Science, secondarily Web Development:

- Identifying community datasets that can support the previously mentioned dot-points in the decision-making process. This is ensured via data dictionaries to uphold relevance to the project's goal.
- Analysing said datasets to generate visualisations that effectively demonstrate trends and/or outliers, proving or disproving factors that impact predictions on new charging station locations.
- Dataset snapshots, coding and visualisations from analysis will be added to our pre-existing test site.

Aims for Trimester

- Continue building our data-pool from the foundation constructed in T1 2022 by collating more community datasets
- Detect trends and/or outliers through data analysis, thus ever-increasing the accuracy for predicting new charging station locations
- Expanding on Google API datasets to include more existing stations within Australia and begin to incorporate international locations.

Location of project resources

Test Site
Trello Board
Teams Channel
Github Repository