



# Chameleon

Smarter World



Task 2.1P

## Chameleon

Prepared by Chameleon Leadership

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## 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.

### COMPANY OVERVIEW

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

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

Both EVAT and MOP leverage datasets from several sources including data generated by IoT-based sensors and as such fit within the goals and mission of the company. The Chameleon website is our main online presence where we articulate who we are, what we do, and showcase our projects to the world.

#### EVAT

The EV Adoption Tools division currently has two projects underway. The first is a mobile application to help EV drivers locate and navigate to charging stations that meet the needs of their vehicles. The second uses big data to analyse the density of EV ownership, main transport routes (amongst other things) and recommends optimal locations for new EV Charging stations.

#### MOP

The City of Melbourne Open data division has been engaged with Melbourne City to support greater use of their Open Data library by businesses, researchers, and software developers. MOP delivers an educational portal that demonstrates how to leverage Open Data using real-world scenarios which helps Melbourne City achieve one of their key strategic goals.

#### CW

The Chameleon Website aims to accumulate all the information about the Chameleon company overall to present in a format that is pleasantly designed, laid out, easy to navigate and useful components to display the progress of all 3 projects while outlining their goals. Which aims to provide a one-stop portal to different links and sub-projects within the company.

## Leadership Team

Acting Director: [Chathu Ranaweera](#).

Company Board: Chathu Ranaweera , Mick Wiedermann, Angie Hollingworth, Janvi Gupta.

Leadership: EV Adoption Tools Group Project Lead: [Mick Wiedermann](#)

EV Charger Forecasting & Location Optimisation (*sub project 1*)

- Project Lead: [Barry Chen](#)
- Web Dev Lead: [Yesini Charithma Liyanage](#)
- Data Science Lead: [Ishika Khanna](#)

Evoleon Mobile Application (*sub project 2*)

- Project Lead: [Joel Murphy-Dyer](#)
- App Dev Co-Lead: [Aanan Abdullah](#)

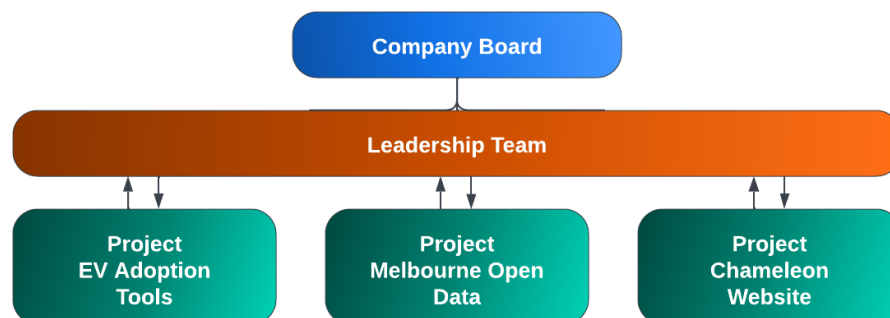
Melbourne Open Data Project Lead: [Angie Hollingworth](#)

- Data Science Leads: [Vaibhav Kashyap](#)  
[Vinit Karunakar](#)  
[Abhishek Bajaj](#)
- Web Development Lead: [Tate Remzi-Johnson](#)
- Security Team Lead: [Izaz Ishaque](#)

Chameleon Website Project Lead: [Janvi Gupta](#)

- Web Development Lead/s: [Navin Dharamrajan](#), [Mayank Verma](#)
- Design Team Lead: [Zak Constable](#)
- Assistant Design Lead: [Jon Suwannakoot](#)

## Company Structure



## Trimester Goals & Objectives

### Objectives

Along with moving each of the Chameleon projects forward, closer to their overall goals, we have identified the following areas for improvement this trimester.

- Document a policy for creating and storing documents with a focus on storing and managing key company documents on GitHub. Once created, migrating company documents to GitHub converting them to markdown in the process.
- Document the best practice policy for the maintenance of the company's GitHub repository, this is to include how to prepare the repository for handover at the end of the trimester.
- Document a policy and procedure for the overall handover process for the company making it seamless for future students to take the lead. This involves:
  - Centralising credentials and resources used throughout the company.
  - Have multiple junior students (who are on lead) brought into the handover process across all projects so that the knowledge does not sit with one team, project or person.
- Introduce cross-collaboration across all projects within the company
  - Sharing teams such as design & security
  - Have multiple cross-company meetings to get all team members (especially the juniors) familiar with the company as a whole.
  - Share wins, roadblocks, resources and topics across similar teams from other projects.
- Introduce and document Cyber Security best practices, and stress tests across all projects. This will introduce future tasks that the web development teams can complete.
- Implement a Design plan across all projects that details the colour scheme to layouts to high-fidelity quality produced wireframes with quality prototyping.

## Projects Overview

### EV Adoption Tools

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 Charger Forecasting & Location Optimisation

##### *Overview*

Project EVCFO provides aid to this cause through two key services: interactive maps using Google API, and an AI Prediction System, that recommends new Electric Vehicle Charging Station (EVCS) locations which will be used effectively by the relevant population.

*Goals & Objectives*

1. Using community data to expand on our database through the addition of newly found datasets.
2. Narrow down to the key external factors which impact the usage and success of EVs and EVCSs
3. Display newly discovered EVCS locations onto a visual map.
4. Integrate new EVCS locations onto our Google API interactive map (Web-Development team)

*Aims this Trimester*

Aim to integrate an interactive map that covers all EVCS locations across the globe to the website and implement an AI Prediction System that automatically and accurately recommends new EVCS locations for EVCS companies to utilize. Further, we aim to advance the project website by implementing design work completed by previous trimesters.

*Deliverables*

- Expand on our EV Charge Location database through the addition of new datasets.
- Display newly discovered EVCS locations onto a visual map.
- Integrate new EVCS locations onto our Google API interactive map (Web-Development team).
- Improve the current visualisations (room for improvement).
- Continue to improve the clustering predictions, these are working but can be improved.
- Implement website designs on the EVCFO website and increase the sites functionality.

*EVCFO Project Members*

Name	Student ID	UG/PG	J/S	Team	Lead
<b>Mick Wiedermann</b>	222058299	Undergrad	Senior	Project	Y
<b>Scott Geoffrey West</b>	213121254	Postgrad	Junior	Data Science	
<b>Jamie Connor Davidson</b>	222356461	Postgrad	Junior	Data Science	
<b>Siqin Chen</b>	221115918	Postgrad	Senior	Data Science	
<b>Viola Cherotich Meli</b>	221187491	Postgrad	Senior	Data Science	
<b>Chaoyi (Barry) Chen</b>	220358865	Postgrad	Junior	Web Dev, Project	Y
<b>Ishika Khanna</b>	219551957	Undergrad	Junior	Data Science	Y
<b>Asher Lam</b>	221254112	Undergrad	Junior	Web Dev	
<b>Balapuwaduge Arnold Prabudda Kalpesh Mendis</b>	222330109	Undergrad	Junior	Web Dev	
<b>Mark Justin Premier</b>	222115089	Postgrad	Junior	Web Dev	
<b>Yousef Ashraf Y A Al-Mulla</b>	221410734	Undergrad	Junior	Web Dev	
<b>Ezekiel Kevin Griffin</b>	219272783	Undergrad	Senior	Web Dev	
<b>Yesini Charithma Liyanage</b>	222063923	Undergrad	Junior	Web Dev	Y

*Evoleon Mobile Application**Overview*

The Evoleon App will help EV owners better plan their trips by identifying optimal EV charging stations as waypoints on their journey and provide them relevant information about those charging stations.

## Task 2.1P

### Goals & Objectives

The goal of this project is to be able to design and implement a mobile app (Android and IOS) to help consumers identify nearby charging locations. Although there are existing products that are similar, here are a few examples of what the app may offer in addition to the core function of locating a socket:

- 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.

### Aims this Trimester

The aim this trimester is to continue implementing the designs created by previous teams and increase the applications functionality. A basic version of the app is currently working but it only has a few screens implemented and the functionality is very limited.

### Deliverables

- Work on adding real EV Location data into the new Firestore locations database.
- Create a Navigation System for the applications map to travel to a selected EV Charger.
- Add an option to filter EV chargers on the map based on amenities stored in database for that EV charging location.
- Move the hamburger menu from the top left of the screen to a menu at the bottom of the screen, similar to the Figma designs.
- Complete a cyber security review of the app's authentication process, data storage, code in GitHub repository, and apps terms and conditions.
- Add the process to reset a user's password or delete an account.
- Continue adding user interface code for the applications pages.

### Evoleon App Project Members

Name	Student ID	UG/PG	J/S	Team	Lead
Mick Wiedermann	222058299	Undergrad	Senior	App Dev, Project	Y
Joel Murphy-Dyer	221081809	Undergrad	Junior	App Dev, Project	Y
Jordan Sam Cooke	220208777	Undergrad	Junior	App Dev	
Kanishk Rajvanshi	222486026	Postgrad	Junior	App Dev	
Khanh Nguyen Nguyen	221393506	Undergrad	Junior	App Dev	
Mohammed Khalid M J Al-Malki	220499349	Undergrad	Junior	App Dev	
Rodney Tenzin Tsewang Annand	221156479	Undergrad	Junior	App Dev	
Wei Liang Tiew	220427347	Undergrad	Junior	App Dev, Design	
Aanan Abdullah	220499062	Undergrad	Junior	App Dev	Y

## Melbourne Open Data

### *Overview*

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.

### *Goals & Objectives*

This project entails the development of an educational platform that showcases the practical applications of Open Data, specifically designed to cater to the needs of various stakeholders, such as industry professionals, government entities, and academic researchers. The primary objective of this project is to leverage the utilisation of the City of Melbourne's Open Data. The long-term goal is to data usage, facilitating innovative and informed solutions to contemporary challenges across the City of Melbourne council area.

### *Aims this Trimester*

The initial main focus is to read the documentation for the new API for the Melbourne Open Data Playground, and systematically work through each published (and yet to be published) notebooks and modify the code so that they will run if downloaded.

The aim for the Data Science team is to create a new set of use cases that fit within the 3 defined key areas of interest from the City Of Melbourne. The team is planning to complete a full set of use cases, and also have enough in the backlog for the next trimester when students will be focussed on InnoFes.

The web team is aiming to further streamline the processes for which the notebooks are published, and working with the design team to optimise the device browsing of our website. As part of the approach to the website, the cyber security team will also be scrutinising all aspects of our public-facing site to look for areas of vulnerabilities that will need to be rectified.

The other main focus for the leadership is to document and streamline the way that the project is documented for handover at the end of each trimester

### *Deliverables*

- Update the API on all published notebooks (ready to be published again), and notebooks ready for publishing.
- Implement a human-readable URL
- Identify vulnerabilities in the source code, python code and database then document a roadmap to mitigatethem
- Implement mobile views for the website
- Create multiple new use cases, allowing enough in the backlog for the next trimester
- Publish notebooks that are ready to be published
- Cleaner resources for the handover procedures for MOP
- Add more functionality to the website
- Implement some interactivity with JavaScript
- Fix the lingering deisgn / css issues within the website



## Task 2.1P

### MOP Project Members

Name	Student ID	UG/PG	J/S	Team	Lead
Angie Hollingworth	222053804	Undergrad	Senior	Data Science, Security, Board	Y
Abhishek Bajaj	221034312	Undergrad	Junior	Data Science	Y
Kruthi Shetty	222067974	Postgrad	Junior	Data Science	
Vaibhav Kashyap	220641102	Undergrad	Junior	Data Science	Y
Vinit Karunakar Shetty	221426969	Postgrad	Senior	Data Science	Y
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Nathan Graham Clee	221255235	Undergrad	Junior	Data Science	
Shanuk Julian Devamulla	221159324	Undergrad	Junior	Data Science	
Siyu Ai	223008124	Postgrad	Junior	Data Science	
Steven Nguyen	222337088	Postgrad	Junior	Data Science	
Adam James Bullivant	219274937	Undergrad	Senior	Data Science	
Andrew Tilling	220554762	Postgrad	Senior	Data Science	
Tuan Minh Vu	219595908	Undergrad	Senior	Data Science	
Tate Remzi-Johnson	221484111	Undergrad	Senior	Dev Team	Y
Jiahao Pan	218562599	Postgrad	Junior	Dev Team	
Mihili Isurika Geeganage Geeganagama Arachchige	222398483	Undergrad	Junior	Dev Team	
Roshan Jose	221499484	Postgrad	Junior	Dev Team	
Syed Kareemullah	220462373	Undergrad	Junior	Dev Team	
Muhammed Nihal	221461233	Postgrad	Junior	Dev Team	
Matthew Hall	220236048	Undergrad	Senior	Dev Team	
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Sharini Mahisha De Mel	217425821	Undergrad	Senior	Dev Team	
Izaz Ishaque	221005704	Undergrad	Junior	Cyber Security	Y
Lucas Kocon	218510242	Undergrad	Junior	Cyber Security	
Zachary Max Kein	220277143	Undergrad	Junior	Cyber Security	
Basilia Carmel Sethu	221491966	Postgrad	Senior	Cyber Security	
Ilyas Hersi Noor	221291811	Undergrad	Junior	Cyber Security	

## Chameleon Website

### Overview

The website for the Chameleon company overall aims to publicise the achievements and progress of Chameleon overall and showcase the sub-companies within it, one of the best ways to do this is through a website.

### Goals & Objectives

The main objectives of this website is to provide a one-stop for all – where it includes all the other sub-companies' information, objectives and links. We want to be able to use this website to advocate for the company, and be able to promote it while having the website be visually appealing, and comes with easy functionality.

### Aims this Trimester

The aim for this trimester will be to modify the front-end and the back-end of the website majority, and make it optimised for mobile access. While the backend hasn't been implemented, it means we have a lot of scope to implement this from scratch. This includes setting up the staff log-in portal, implementing API's with SendGrid and Mailchimp and creating a client portal.

For the front-end of the website, we aim to make the website more appealing, with the design and web development skills of the students. We want to deliver a high-quality attractive, easy to navigate and overall simple aesthetic of the website. This also means through using correct wireframing techniques within the design team, agreeing on a solid design that meets this criteria before implementing.

It will be important for the Chameleon Website to present all the other projects for the Chameleon company on the website, while this has currently been started – links have not been provided.

Overall, reducing awkwardness on the website and providing a smooth experience is the overall aim for this trimester.

### Deliverables

- Implement a more aesthetic and navigation friendly design
- Work on the blogging section of the website – add links to other projects
- Build the staff portal and implement the API's behind it to get it running
- Reevaluate the Resources tab to see what can be added and removed from it
- Work on the fonts used and colour scheme of the website, and adding in different components to the website design
- Implement mobile views for the website
- Implement SEO strategy to rank the website higher in web search engines
- Building a client user account portal to view progress, updates and services of the Chameleon Projects

### CW Project Members

Name	Student ID	UG/PG	J/S	Team	Lead
Janvi Gupta	221220324	Undergrad	Senior	Project Lead, Board	Y
Davinderjit Singh	219606745	Undergrad	Junior	Dev Team	

### Task 2.1P

<b>Navin Dharmarajan</b>	222475715	Postgrad	Junior	Dev Team	Y
<b>Antony Raju</b>	221471405	Post Grad	Junior	Dev Team	
<b>Bhavika Sood</b>	218529556	Undergrad	Junior	Dev Team	
<b>Jordan Reeves</b>	217140954	Undergrad	Junior	Dev Team	
<b>Seung Hwan Kim</b>	221393121	Undergrad	Junior	Dev Team	
<b>Zhuo Yu Li</b>	220283605	Undergrad	Junior	Dev Team	
<b>Ziyan Zhai</b>	221208796	Undergrad	Junior	Dev Team	
<b>Aishwarya Mariselvam</b>	221200552	Post Grad	Senior	Dev Team	
<b>Aye Moh Moh Shwe</b>	220462239	Undergrad	Senior	Dev Team	
<b>Jiankun Wang</b>	221092755	Undergrad	Senior	Dev Team	
<b>Mathew Ho</b>	220271708	Undergrad	Senior	Dev Team	
<b>Mayank Verma</b>	219400263	Undergrad	Senior	Dev Team	
<b>Qiushi Huang</b>	221456822	Undergrad	Senior	Dev Team	
<b>Regan Tam</b>	219488177	Undergrad	Senior	Dev Team	
<b>Thomas Koutsaplis</b>	220233577	Undergrad	Junior	Dev Team	
<b>Jon Suwannakoot</b>	220069966	Undergrad	Junior	Design Team	Y
<b>Zak Constable</b>	220535629	Undergrad	Senior	Design Team	Y
<b>Yin Chak Yiu</b>	219352934	Undergrad	Senior	Design Team	
<b>Ziyan Shen</b>	219323496	Undergrad	Senior	Design Team	
<b>Nitin Singh Dogra</b>	221265784	Undergrad	Junior	Design Team	
<b>Amal Paul</b>	222197619	Undergrad	Junior	Dev Team	
<b>Balapuwaduge Arnold Prabudda Kalpesh</b>	222330109	Undergrad	Junior	Dev Team	
<b>Jiankun Wang</b>	221092755	Undergrad	Senior	Dev Team	
<b>Qiushi Huang</b>	221456822	Undergrad	Senior	Dev Team	
<b>Rodney Tenzin Teswang</b>	221156479	Undergrad	Junior	Dev Team	
<b>Wei Liang Tiew</b>	220427347	Undergrand	Junior	Dev Team	