Deakin University

Capstone Team Project (A)

OnTrack Submission

# Company Objectives and Structure


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# Redback Operations - Company Structure and Objectives for 2022 T3

## Executive Summary

Redback Operations intends to gamify exercise by producing cutting edge connected fitness devices to improve exercise quality and training effectiveness. This trimester focuses on improving the Smart Bike product to make the VR game more immersive and fun, adding a marketplace to provide additional incentive for exercising, improving visual consistency of the website, and securely deploying related services.

Planned features are:

- A quest system and mini map will be created in the VR game
- A physics system will be developed to use environmental feedback to improve immersion
- Addition of multiplayer cycling
- A visual based pose estimation model will be trained and used to influence wind speed and cycling efficiency.
- The remaining pages in the mobile application will be implemented
- The marketplace will be built for the website so rewards from exercise can be redeemed
- Containerised services will be redeployed on GCP
- Cyber Security will implement incident monitoring and firewalls to prevent compromise.
- The design team will improve the consistency of the website.

Signed off by the Acting Director.

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## Leadership Team

Acting Director: Dr Akansel Cosgun

Company Lead: Dr Adrian Grigo

Leadership Team:

| **Team** | **Leads** |
|---|---|
| IOT | Adrian Grigo and Kyle Rayner |
| VR | Germain Spriet and Yu Cheng Shi |
| Mobile | Will McCallum |
| DevOps | Harris Memon |
| Data/AI | Mark Telley |
| Design | Ricardo Ingles |
| Web | Jaisharan Sugavanam |
| Cyber | Erik Wu |

## Trimester Goals and Objectives

Planned features are:

- VR game will be improved with a quest system and mini map
- A physics system will use environmental feedback to improve immersion
- Addition of multiplayer cycling
- A visual based pose estimation model will be developed to further influence wind speed and cycling efficiency.
- The remaining pages in the mobile application will be implemented
- The marketplace will be built for the website so rewards from exercise can be redeemed
- Containerised services will be redeployed on GCP
- Cyber Security will implement incident monitoring and firewalls to prevent compromise.
- The design team will improve the consistency of the website.

## Company Structure and Projects Overview

| | |
|---|---|
| IOT: | Project 1: Smart Bike Project |
| VR: | Project 2: Sun Cycle Project |
| Mobile: | Project 3: Mobile Application |
| DevOps: | Project 4: Deploy Docker Containers |
| Data/AI: | Project 5: Risk Assessment and Standard Operating Procedure |
| | Project 6: Sales Visualisation and Data Analysis |
| | Project 7: Oxygen Uptake Prediction Model |
| | Project 8: Research into Developing Calculator Tools using Cycling Data |
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| Design: | Project 11: Fixing and Adjusting the Fitness Application |
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| Cyber: | Project 13: Implement Chronicle SIEM |
| | Project 14: Research Jenkins Automation Security Testing |
| | Project 15: Two Factor Authentication Implementation in Company Website Login |
| Web: | Project 16: Marketplace, Yearbook and Responsiveness Improvements |

The 16 projects are interlinked around the Smart Bikes and associated VR game and mobile application. The website will become linked with the addition of the marketplace to spend tokens earned in game. All are supported by the backend and security research including Jenkins, Docker and GCP. The design team are improving the consistency and features of the front ends, and AI team have multiple projects aimed to collect, analyse and use the available data to improve training.

# IoT and Embedded Systems

## Overview, Goals, and Objectives

The IoT and Embedded Systems team will be predominantly working on the Smart Bike Project. Some of the work we will be conducting this trimester includes continuing on with the Cycling Against Friends/Ghosts feature, working on the physics system for the Smart Bike Project and also working with the Data/AI team on some of their planned features for the Smart Bike Project. Below is a list of some of the key objectives for this trimester.

- Build a working prototype of the Cycling Against Friends/Ghosts feature
- Physics integration to add more feedback to update the bikes based on the VR environment

The mission of Redback Operations is the following:
*'Build cutting edge technologies for connected health, fitness and sport to enable smart, safe exercise. Our key products are internet connected smart bikes integrated with a mobile application for workout and a VR game experience.'*

The work that the IoT and Embedded Systems team is focusing on this trimester goes hand in hand with the mission statement above. The Cycling Against Friends/Ghosts feature aims to provide an engaging and interactive VR experience that adds more gamification to the Smart Bike project. Work on the physics system will enrich the experiences that Redback Operations offer by providing more realistic and immersive functionalities.

## Project 1: Smart Bike Project

### Overview, Goals, and Objectives

The Smart Bike Project entails internet connected smart bikes that can be programmed to mimic real world conditions. This includes changing the resistance of the wheels and the incline of the bike among many other capabilities. One of the main features of the Smart Bike Project is that Virtual Reality applications and a mobile application will be integrated into it which will provide users an immersive and engaging cycling experience. The motivation of this project is in accordance with the mission statement of Redback Operations which is to 'build cutting edge technologies for connected health, fitness and sport to enable smart, safe exercise'.

As the Smart Bike Project already has a working smart bike, one of the main focuses moving forward is to make a compelling experience through Virtual Reality games and a mobile application. Such projects are already in the workings including Project Sun Cycle and a mobile application. The IoT and Embedded Systems team will assist in this objective by working with other teams more so to help out where necessary as well as adding more and improving upon the functionalities that the smart bike already offers. The Cycling Against Friends/Ghosts feature is one such effort that the team will be working on in this trimester and in future trimesters to help out with this objective.

The IoT and Embedded Systems team will also be working on implementing a system to measure functional threshold power (FTP) in order to provide more personal workouts for users. This will result in users being able to get the most out of the smart bike by training to their maximum sustainable workload.

## Aims for Trimester

- Build a working prototype of the Cycling Against Friends/Ghosts feature (mobile or VR game)
- Physics integration to add more feedback to update the bikes based on the VR environment
    - Algorithm to adapt wind speed based on proximity of competing cyclist (simulate slipstream effect)
    - Algorithm to adjust incline of bike based on ground plane normal
- Creation of Game Design Document for the Cycling Against Friends/Ghosts feature to thoroughly document the specifics of the feature
- Finish off Figma designs for the Cycling Against Friends/Ghosts feature for the mobile application
- Work through backlog of tasks on the IoT and Embedded Systems team's Trello board
- Work alongside the Data/AI team to help deliver some of the features they plan for the Smart Bike Project
    - Work on some AI/ML related models research and build up
    - Work on the post detection/estimation model using the camera
    - Work HR/VO2 max prediction model

Link to backlog of tasks on the IoT and Embedded Systems team's Trello board:
https://trello.com/b/ppGeEiQf/iot-and-embedded-systems

## Deliverables

Due to the intensive nature of this trimester, deliverables have been separated by short term deliverables which ideally will be done this trimester and long term deliverables which will be scheduled for future trimesters.

Short Term Deliverables:

- Build working prototype of the Cycling Against Friends/Ghosts feature (mobile or VR game)
- Implement physics integration to add more feedback to update the bikes based on the VR environment
- Create Game Design Document for the Cycling Against Friends/Ghosts feature
- Create all Figma designs needed for the Cycling Against Friends/Ghosts feature for the mobile application

Long Term Deliverables:

- Implement system to measure functional threshold power (FTP)

## Project Members

Adrian Grigo (Co-Leader)

Kyle Rayner (Co-Leader)

Quintin Xu

# Team Name: VR Modelling and Game Development

## Overview, Goals, and Objectives

The background of the game is a desolate desert, and the tribal settlements are the residences left by humans, and players need to deliver their mail on time. Earn points through the interaction between the game and equipment. Points can be used to redeem things in Redback Operation. This is to motivate users to exercise.

## Project 2: Sun Cycle Project

### Overview, Goals, and Objectives

Project Sun Cycle is an exercise VR based game where players can use specially engineered exercise bicycles to navigate the post-apocalyptic world of the game making deliveries on a hover bike.

### Aims for Trimester

Continue to complete the unfinished part of the previous project. Adding new elements to the game. Working VR build and build quest system.

### Deliverables

1. Hud Player UI
    - Mini map
    - Compass
    - Current Quest
2. Make a quit method
3. Designing NPC's model
4. Physics system
    - increase resistance on incline vice versa
5. Ensuring the VR Build works
6. Posture detection System (Later)
7. Quest system

### Project Members

| Name | Level | Tasks | Role |
|---|---|---|---|
| Yu Cheng Shi | Senior | Make Menu and Quest System | Team Leader |
| Hao Pan | Senior | NPC Model and Texture | Team Member |
| Germain Spriet | Senior | HUD (Player UI) | Team Leader |

# Team Name: Mobile Application Team

## Project 3: Mobile Application

### Overview, Goals, and Objectives

The Mobile App is on of Redbacks products which the user can engage with. It is about developing an app that will comprise of one of the possible experiences Redback customers to use when they are exercising. The problem it aims to solve is providing customers with an accessible and portable solution that can be used to track their fitness. A mobile app can easily be downloaded and set up on exercise machines or for workouts when the user is on the move. The overall goal of the project is to provide a friendly and engaging user experience which will impact stakeholders by building a brand image for Redback giving it value while also strengthening customer loyalty. The main deliverable for the project will be an app with all the necessary pages so that there is a complete experience from when the app is opened, and a workout is completed.

### Aims for Trimester

- Complete additional pages from Figma design eg extra workouts, social pages etc
- Add registration and authentication
- Connect database
- Currently the frontend needs hardcoding the IP address of the backend, and it only ran on Mac at InnoFes. Making it more flexible and deploying it using a publicly available address (eg on GCP)
- Contact Us and Frequently Asked Question pages require more functionality and change in colour scheme

### Deliverables

1. Additional pages Such as 'Friends Page', 'Arena' page and 'Settings' Page
2. Link Frontend and backend together
3. Remove bugs and increase functionality of current pages
4. connect database.

### Project Members

| Name | Level | Tasks | Role |
|---|---|---|---|
| Will McCallum | Senior | Removing Bugs, increased functionality, linking both ends | Team Leader |
| Wei Jiang | Senior | Creating Friends, Arena, and settings pages | Team Member |
| Kai Yuan Wang | Senior | Connecting database, additional pages, linking both ends | Team Leader |

# Redback Operations – Devops Team

## Overview, Goals, and Objectives

Our team aims to learn the required knowledge to deploy the Docker containers created by the last devops team on google cloud platform

# Project 4: Deploy Docker containers

## Overview, Goals, and Objectives

Our goal is to create an automated way to deploy the company websites onto google servers and give teams an easy way of updating the site in a way that it will be easily troubleshooted.

## Aims for Trimester

Our aims are to create documentation that can provide information about how to deploy the docker containers on github onto google cloud.

## Deliverables

Create documentation for deploying Docker containers to GCP

Deploy the docker containers on github created by the last devops team

## Project Members

| **Name** | **Role** |
|---|---|
| Harris Memon | Team Lead |
| Paul Astifo | Team Member |
| Harshana Badalge | Team Member |
| Sam Titus Menacherry | Team Member |

## Data Science and Artificial Intelligence Team

Senior Students:
Andrew Mayes
Nithini Bogahawatta
Lang Ning Bao
Quintin Xu*

Junior Students:
Mark Telley (lead)

**Working with more than one team.*

## Overview, Goals, and Objectives

- The Data Science and Analytics (DSA) team is made up of four students (three of which are senior students) and one additional student working across more than one team. The team is relativity small, and each student will be driving their own projects forward vs. working on a single project collectively.

- The DSA team are inheriting a few projects from Trimester 2, 2022 with the aim of further developing the specific projects. Some projects will continue into Trimester 1, 2023 whereas some will be completed (handed over) at the end of Trimester 3, 2022.

- A key objective is to procure more data concerning workout/session data to further support analytical and modelling efforts, thus improving precision, recall and accuracy performance. The indirect benefit of procuring such data will help inform the requirements for being able to export session data from the bikes located in the labs as means of uploading session data to 3rd party applications such as but not limited to Strava, TrainingPeaks etc.

- A key objective will be to further develop the Oxygen uptake prediction model that use both data from the bikes located within the lab and procured bike (workout) output data.

- A key objective will be to begin finalising the Sales data analysis and visualisations and to facilitate a handover to the UX/Web/Mobile teams to integrated into web/mobile website.

- A key objective will be to begin working on new projects; Posture analysis, Workout Analysis and User specific visualisations using Tableau. By adding new projects to the DSA list of projects, this both allows for continuity in project output carrying into Trimester 1, 2023 and further increasing Redback Operations product development efforts.

- A key non-project led objective is to ensure handover documentation is detailed and transparent in anticipation for a highly effective handover to the Trimester 1, 2023 team; this will be delivered via strong and consistent documentation standards such as but not limited to; operating manuals, access details (database, datasets, Tableau accounts) and technical documentation concerning any model or analysis led projects.

- Work on at least 4 out of the 5 listed projects within this document; allow for one project to be rolled over to Trimester 3, 2023 should timing constraints materialise.
- Secure an updated Risk Assessment that liberalises operating (use) restrictions of the bike trainers within the respective Deakin (Burwood) lab.

# Project 5 – Risk Assessment and Standard Operating Procedure

## Overview, Goals, and Objectives

Redback Operations is operating two indoor cycling trainers (Wahoo Kickr and Wahoo Climb, Avanti Montari 2 MTB 29" frame) to support product development and research. Given the dynamics of this equipment, there are obvious but very manageable risks. Deakin Health and Wellbeing have previously expressed concerns regarding the operation of this equipment due to safety issues such that operating the equipment has been heavily restricted. Wahoo Kickr's are used safely in various settings; amateur and professional e-racing events and as part of research efforts (Zadow et al., 2016, Zadow et al., 2018) across Australia. Wahoo Kick's also meet the relevant Australian standards and is sold both within the public and commercial markets. There are clear (existing) paths to operating the equipment safely and Deakin's Health and Wellbeing Team need to be reengaged to provide fair and reasonable operating requirements that allows students to use the equipment as it was designed to be use and to liberalise current operating restrictions.

## Aims for Trimester

1. Able to operate/use bike trainers freely but safely.
2. Document a safe standard operating procedure.

## Deliverables

1. Update risk assessment to allow Students to use the trainers within the lab.

## Project Members

Mark Telley – Student Lead; responsible for coordinating Risk Assessment.
Akan Cosgun – Teaching Lead; responsible in helping support student lead.
Adrian Grigo – Support; Provide support where required as company lead. Page Break

## Project 6 - Sales Visualisation and Data Analysis *(existing)*

### Overview, Goals, and Objectives

Existing research, data analysis has been conducted to deliver meaningful insights from gaming sales data along with market information on the prospect of Health & Fitness video games. Such efforts continue to support Redback Operation's ability to make data-drive strategic decisions both in the short and long term. The goal over the duration of Trimester 3 is to further develop Sales data analysis and visualisations.

### Aims for Trimester

- Finalise Sales Tableau Reporting and Visualisations.
- Continue to formalise and report on key data insights.
- Handover the Tableau product to the UX and front-end development teams in preparation for web deployment.
- Produce high quality handover documentation concerning access details, data location access, technical documentation etc.

### Deliverables

1. Finalise current Tableau reporting visualisations.
2. Handover of Tableau reporting and visualisation to UX and front-end teams.
3. Handover Documentation available within DSA GitHub repo.
4. Develop a pipeline of potential future data analysis efforts/areas of focus to inform projects for future members of the DSA team.
5. Develop a pipeline of potential future improvements regarding Tableau to inform projects for future members of the DSA team.

### Project Members

Nithini Bogahawatta – Lead; responsible for deliverables
Mark Telley – Tester; User based testing to support Team Lead.

## Project 7: Oxygen uptake prediction model with sensor data from bikes *(existing)*

### Overview, Goals, and Objectives

A considerable amount of work has been invested in Oxygen uptake prediction modelling. As previously identified, measurement of oxygen uptake is expensive and not everyone can afford to have such expensive tools. The purpose of continuing research and development efforts is to continue refining algorithms/models that can predict the oxygen uptake for cyclists using an alternative method. This adds excellent value to Redback Operation's product development as it would be a highly desirable user feature, particularly for users interested in fitness development and improvement. A key goal is to facilitate handover to the development teams to integrate the modelling into the in-game experience.

### Aims for Trimester

1. Assess all existing research and development (algorithms, data analysis, datasets etc) and identify and further areas of focus.
2. Continue refining and developing the existing models.
3. Develop handover documentation (to other teams).
4. Develop a pipeline of future calculators that future DSA teams could continue working on.

### Deliverables

1. Document testing and model performance metrics (precision, recall, accuracy etc)
2. Thoroughly document modelling technical specifications.
3. Thoroughly document key handover materials and upload to the DSA GitHub repo.

### Project Members

Andrew Mayes – Lead; responsible for deliverables.
Quintin Xu – Tester; User based testing to support Team Lead.

## Project 8: Continue Researching data for cyclists as part of developing calculator tools

*(existing)*

### Overview, Goals, and Objectives

Cycling is a data intensive sport such that many different data points can be collected/recorded and thus can be reported on. Given the array of potential data points, several calculators can be developed to provide the User with key insights into their performance. Being able to develop calculator tools that can be used both by Users and Development teams further improves the User experience and allows the Development team to utilise and incorporate accurate and relevant calculations within the in-game experience.

### Aims for Trimester

1. Existing documentation with DSA's GitHub repo is inconsistent, not immediately obvious, or easy to find; improving documentation transparency is a key aim for this trimester. This should further support handover efficiency for the Trimester 1, 2023 teams.
2. Continue to develop, test, refine and handover over calculator tools to the broader Redback Operation's team. Moreover, the aim to complete (handover) at least one calculator tool.

### Deliverables

1. Document testing and respective calculation performance.
2. Thoroughly document respective calculator technical specifications.
3. Thoroughly document key handover materials and upload to the DSA GitHub repo.
4. Handover at least one calculator tool to respective Redback Operation teams.

### Project Members

Lang Ning Bao – Lead; responsible for deliverables.
Andrew Mayes – Tester; User based testing to support Team Lead.

Page Break

## Project 9: Posture Analysis Model *(new)*

### Overview, Goals, and Objectives

The posture of a bike user influences several variables, indirectly and directly. Moreover, posture can be used as a qualitatively (indirectly) particularly when accessing the bike user's energy levels i.e., if you see a competitor in complete control of their breathing and posture you could assume the competitor is 'in control,' or they could be bluffing – controlling posture can provide a competitive psychological edge particularly in a racing environment. Posture also directly impacts performance metrics such as speed and power i.e., When riding at speed (>40kph) on a flat surface or descending a hill, the posture into those circumstances plays directly into aerodynamics. Therefore, being able to analysis a user's posture during the in-game experience will allow a more realistic simulation of actual outdoor cycling by rewarding good posture and penalising poor posture based on the specific circumstance. Features like this will continue to innovate Redback Operation's product developing efforts.

### Aims for Trimester

1. Initiate project (scoping) documentation capturing key technical considerations, research, deliverables etc.
2. Develop technical documentation regarding key hardware being used and how to use the hardware i.e., Cameras.
3. Assess posture positions and map them to respective cycling scenarios.
4. Research models that can analyse and predict a user's posture on the bike.
5. Begin testing models.

### Deliverables

1. Handover key project (scoping) documentation.
2. Test at least one posture prediction model and document key findings.
3. Thoroughly document key handover materials and upload to the DSA GitHub repo.

### Project Members

Andrew Mayes – Lead; responsible for deliverables
Mark Telley – Testing participant.
Adrian Grigo – IOT (Internet of Things) team lead; Technical support (use of camera hardware)

## Project 10: Workout Analysis Model and Data Visualisation *(new)*

### Overview, Goals, and Objectives

Whether a bike user is using an indoor trainer, cycling outdoors, or using Redback Operation's VR (Virtual Reality) product, being able to provide post-workout analysis and succinct data visualisations to the user is a critical component in the user experience. Being able to develop analytical models and tools to analyse workouts will also benefit Redback Operation's ability to develop popular/in-demand structured workouts. Furthermore, by beginning to analyse user data, Redback Operations can begin ranking user vs users thus creating a competitive in-game environment.

### Aims for Trimester

1. Initiate project (scoping) documentation capturing key technical considerations, research, deliverables etc.
2. Conduct competitor research regarding visualisation and post workout analysis features and standard.
3. Procure a meaningful amount of workout data to support model analysis and training efforts.
4. Uniformly organise and clean procured data into respective datasets and a single, easily accessible database.
5. Draft a plan to integrate data analysis efforts with Projects 2 and 3 i.e., included calculators and oxygen prediction model within the data visualisations.
6. Develop at least one prediction-based model i.e., Workout category prediction (climbing, HIIT, recovery etc).
7. Begin developing Tableau based reporting visualisations.

### Deliverables

1. Thorough Project documentation.
2. Thoroughly conduct competitor research specific to the project scope.
3. Organised data location of procured data.
4. Prototype of data visualisation within Tableau concerning post workout analysis.
5. Deployment (and testing) of one predictive learning model.
6. Thoroughly document key handover materials and upload to the DSA GitHub repo.

### Project Members

Mark Telley – Lead; responsible for deliverables
Nina Zhang - develop a dashboard that can analyse a user's workout/session data
Quintin Xu – Tester; User based testing to support Team Lead.

## REFERENCES

ZADOW, E., KITIC, C., WU, S. S. X. & FELL, J. 2016. *Validity of the Wahoo KICKR Power Trainer*.

ZADOW, E. K., KITIC, C. M., WU, S. S. X. & FELL, J. W. 2018. Reliability of Power Settings of the Wahoo KICKR Power Trainer After 60 Hours of Use. *International Journal of Sports Physiology and Performance,* 13**,** 119-121.

# Design Team Company objectives and structure

## Overview, Goals, and Objectives

- The Design team aims to overhaul and enhance Redbacks design for their landing site and application.

-We are Analysing the Figma design and are listing off ways we can improve the design.

-Figma is our primary application that we will be editing/using

-Hope to work close with our other teams such as the front-end team to provide designs that they will be able to implement in the final handover.

-The Design team fits into the company as we are working diligently to create designs that not only are teams can implement but also complete in a reasonable timeframe as we need to take into consideration of their deadlines.

-Adjust and look over the fitness application and tweak and add new features.

# Project 11: Fixing and Adjusting the Fitness application.

## Overview, Goals, and Objectives

This Project as it currently stands uses a design that was completed by the previous design team; however, it has some inconsistencies with text and other small design inconsistences our goal this trimester is to get this design consistent and working we are also looking at adding new features into this design, but we need to hear from our other teams.

Long-Term we hope to finalise and complete these designs so that way they last as long as possible having more resources and time delegated to other areas of Redback Operations.

## Aims for Trimester

This Trimester we aim to provide this design in it complete form to the other teams with new features so that way they can work, for example the front-end design team that needs these designs before they can complete any major work to the actual product.

## Deliverables

Our long-term deliverable for this project is to adjust the design and finalize it to where the only reason that it needs to be worked on is to add new features, while the design is close to that stage it still needs work.

Our Trimester Deliverable is to provide new features to this existing design and provide it to the other teams to develop this deliverable needs to happen early in the trimester so that way the other teams have time to develop these ideas.

## Project Members

As it currently stands the whole design team is working on this the lead is RICARDO INGLES and the team members are SHAOCONG WANG, NINA ZHANG, QIANHUI MENG MENG, HARSHANA THILANGA THRIKWALA BAGALGE, BRIAN DANG, HANWAN DUN, JIAZHENG OU, XINYU JIANG AND AKILA SOORIYABANDRA

# Project 12: Web page landing design

## Overview, Goals, and Objectives

This project revolves around overhauling and redesigning our website to be more appealing and to also modernize the design. As it currently stands the design is primitive and is missing aspects from the last trimester and once again has minor design inconsistencies.

The Next step will be to recover the work done from last trimester and further work on it as a lot more aspects in this design need to be changed this will overall have a positive turnout on redback operations as the design has some much-needed changes.

## Aims for Trimester

The aims for this project this trimester is an overhaul on the design of this site we need to do this urgently as this represents the company and does not match the design language of the other project the goal should ultimately be to have these designs consistent with each other by the end of the trimester.

## Deliverables

The long-term deliverable of this project is to create a new design that not only fits the aesthetic of the other project while being good enough to only be changed if a new component needs to be added.

A Trimester deliverable is to overhaul aspects of this design dramatically and provide this new design to the other teams to implement, This project is most likely going to need more work than the other one.

## Project Members

As it currently stands the whole design team is working on this the lead is RICARDO INGLES and the team members are SHAOCONG WANG, NINA ZHANG, QIANHUI MENG MENG, HARSHANA THILANGA THRIKWALA BAGALGE, BRIAN DANG, HANWAN DUN, JIAZHENG OU, XINYU JIANG AND AKILA SOORIYABANDRA

# Cyber Security Team

## Overview, Goals, and Objectives

- Redback Operations is developing a product internet-connected with smart bikes which is integrated with a mobile application for workouts and a VR game experience.
- As a cyber security team, we aim to fulfill the requirement raised by other teams regarding to the cyber security
- At the meantime, we would like to detect the vulnerabilities regarding to the developed or developing products or applications, such as website and eliminate such determined vulnerabilities.

## Project 13: Implement Chronicle SIEM

### Overview, Goals, and Objectives

Chronicle SIEM (Google cloud Security information and event management system) is targeted to implement in this Trimester.

### Aims for Trimester

- Timeline of GCP environment implementation
- Upskill in Google Cloud

### Deliverables

- Google Chronicle incident monitoring

### Project Members

| | | |
|---|---|---|
| Ashley Fricker | Junior | Implement Chronicle SIEM (Google cloud Security information and event management system) |
| Megha Khatri | Junior | 1. Research how to implement SIEM into GCP<br>2. Implement Chronicle SIEM (Google cloud Security information and event management system) |
| Timothy Major | Junior | Implement Chronicle SIEM (Google cloud Security information and event management system) |
| Caitlin Parker | Junior | Implement Chronicle SIEM (Google cloud Security information and event management system) |
| Ratnayake Ratnayake | Senior | Research how to implement SIEM into GCP |

## Project 14: Research Jenkins automation security testing

### Overview, Goals, and Objectives

Security testing is important to detect any vulnerabilities in the product or application. If a vulnerability is detected, it should be recorded, reported and determine how to mitigate it.

### Aims for Trimester

Provide the method to implement an efficient Jenkins automation security testing

### Deliverables

The demonstration of automation security testing

### Project Members

| | | |
|---|---|---|
| Karl Aquino | Senior | Research Jenkins automation security testing |
| Jikuan Liu | Junior | Research Jenkins automation security testing |

## Project 15: 2-factor authentication implementation in company website login

### Overview, Goals, and Objectives

2-factor authentication is vital to authorise the login people securely.

### Aims for Trimester

Implement a 2-factor authentication security in company website during login

### Deliverables

Demonstration on how 2-factor authentication security functioning during login

### Project Members

| | | |
|---|---|---|
| Khurram Zeeshan | Senior | Implement 2-factor authentication for the company website login |
| Erik Wu | Junior | Research the implementation of 2-factor authentication for the company website login |

# Website Development -Frontend

## Overview, Goals, and Objectives

Our team aim to continue developing and improving the company web application for Redback Operations

- Publish yearbook feature
- Continue implementing Figma design into company website
- Collaborate with design team to develop new feature
- Collaborate with DevOps to deploy new feature to the company domain name

## Project 16: Marketplace, Yearbook and Responsiveness Improvements

### Overview, Goals, and Objectives

Building and improving web application for Redback Operations for deployment by the end of trimester 3. Our goal is to build a functional and responsive web application to improve company appearance on the online environment. Moreover, our team aim to integrate variety of features to work seamlessly with the smart bike system to provide an excellent user experience.

### Aims for Trimester

Our team aim to implement Figma design and features into the functional and responsive product in order to deploy an improved version of the web application by the end trimester 3

### Deliverables

Trimester deliverable:

- Product marketplace feature
- Deploy Yearbook feature
- Optimize website responsiveness

Long-term deliverable:

- Receiving token from the backend
- Spending token on product
- Pay wall integration
- Fetch user data from API

### Project Members

- Brian Dang : Implement Product Marketplace, Optimize website responsiveness
- Ricardo Ingles : Implement Product Marketplace, Optimize website responsiveness
- Chun Wai Fong : Implement Product Marketplace, Deploy Yearbook
- Jaisharan Sugavanam – Team Leader , Deploy Yearbook, Work with design team to maintain website components consistency, work with DevOps to deploy improved version