# Scope of Work

Team: 3200\_35, Sound Meter Data Visualisation.

1. Project Background

Thales in Australia supplies and sustains a range of products for the Australian Defence Force (ADF). Thales works in partnership with the Royal Australian Navy; having designed and delivered a variety of solutions in both the underwater and above water domains.

The Clients Ben Hicks and Rebecca Waters who work for Thales, have come forward with a project that will enhance their current system of fatigue measurement for those serving at sea as to help with the health and wellbeing of the sailors and to improve productivity on board the ship.

The goal of the project is to display meaningful sound data using visualisation on a web application that will assist the Australian Navy Medical Officer in identifying sailors that could be experiencing fatigue and other health issues due to extended exposure to large sounds while working aboard the vessel.

**CURRENT SYSTEM**

Thales have previously implemented a fatigue management system for the ADF, without the collection of sound data. The system tracks body vital signs from a personal watch sensor, which is uploaded to a web interface to provide visualisations and insights for management and medical officers to protect and improve the wellbeing of those on board, as well as increase their productivity. Current research has indicated that sound plays a larger role than once thought in inducing fatigue, leading to a scope for the proposed product.

1. Goals of the Agreement

At the end of the project (Monday 18th of October) Thales will receive a web application that displays and conveys the information and data that will help users determine those at risks to fatigue due to sound.

1. Objectives

3.1

**Task:** Gather sound data and research that will outline the potential affects sound will have on sailors over a period.

**Deliverable:** Collected and stored multiple sample sound level recordings, as well as have research completed on what levels of sound and time exposure has on people.

3.2

**Task**: Format data into a database to be displayed on web application.

**Deliverable:** Built a sustainable back end for the application that has an appropriate schema for the database and runs on a local server.

3.3

**Task**: Create a web application that once finished can be easily migratable into the pre-existing web app used by the Australian Navy, it will Display the data, while outlining sailors that could been experiencing fatigue due to large exposure to sizeable amounts of decibels.

**Deliverable:** Display the data and information on the website, visualisation will be approved by the Client and to their liking, it will be similar to what their system already looks like. Written in the language that their pre-existing system is written in so that it is easily migratable.

**Documentation**

The purpose of design documentation is to detail how the business requirements will be technically implemented. The design documents will be delivered at the beginning of Sprint 2, once the high-level business requirements have been finalised. This will include a system architecture, any technologies being used, as well as pseudocode examples of any algorithms and data structures.

We will also deliver test documentation in Sprint 2 and 3. The purpose of test documentation is to define what tests will be run to ensure to the delivery of an acceptable product to the client. There will be multiple stages of functional and non-functional testing before the final delivery. We will include code unit tests run on individual snippets. Secondly, there will be system tests, which test how components will work together. There will also be user acceptance testing, which tests the end-user experience compared to the requirements.

The purpose of end-user documentation is to provide any user-guides, manuals, and other technical information that is needed for the client to successfully operate the software. We will provide end-user documentation in the final stages of our project, and will be delivered with our project.

**Hardware considerations**

Whilst the client have kept the scope for hardware requirements open and suggested that we use what would be optimal for the project, they have suggested some guidelines that will make the integration into their existing system easier.

* The system should operate wirelessly, which can piggyback off existing WiFi systems onboard the vessels.
* The system should be portable enough to run on a system without high-end specifications
* The system should be lightweight enough to be accessible from a web browser/smartphone.

**System Interfacing**

Inputs to the system consist of:

* Sound level samples from a sensor onboard a ship.
* Credentials supplied by an existing database system.

Outputs to the system consist of:

* Visualisations presented to users interfacing with a web interface
* An API that provides an interface to the underlying database.

**Security Issues**

Although the client has indicated that the system will be running off an unsecured WiFi network used to interface with the public internet, given the that the nature of the clients operations can be sensitive (National Defense), security should be an utmost priority of the system. Throughout the development of the project, part of the testing process should ensure that the all the data collected can only be accessed with authorisation.

**Physical Environment**

Our product may be operating in a variety of harsh physical environments, including high heat (engine rooms), humidity (deck of boats) and turbulent. With these environmental factors in mind, our product should include hardware and software that is resilient to these extreme conditions. Part of a stretch target for our project could include testing the hardware under such conditions.

**Resource management**

The nature of our product will involve the collection of large amounts of data that should be stored and archived. Our system should involve redundancy measures so in the case of disk failure or power loss, the data collected should be able to be restored from backups. This will be automatically built in as a feature of our system. Part of the end-user documentation and handover will include outlining the responsibilities that system administrators will have in maintaining the data collected.

1. Administration

Those working on the project are:

|  |  |
| --- | --- |
| **Full Name** | **Email** |
| Caleb Cheng | 22716794@student.uwa.edu.au |
| Darby Edwards | 22713383@student.uwa.edu.au |
| Kese Gasbarri | 22628168@student.uwa.edu.au |
| Aditi Malu | 22526301@student.uwa.edu.au |
| Shane Monck | 22501734@student.uwa.edu.au |

Clients are:

|  |  |
| --- | --- |
| **Full Name** | **Email** |
| Ben Hicks | Ben.Hicks@thalesgroup.com.au |
| Rebecca Waters | Rebecca.WATERS@thalesgroup.com.au |

1. Timeline

The project is governed by three sprints following the Agile methodology.

***Sprint 1 (2/8/2021 to 18/8/2021):***

At the end of this sprint five deliverables will be delivered to the Client that will help set up the overall direction for the project.

These are:

A Scope of Work

A Skills and Resources Audit

A Risk Register

Project Acceptance Tests

A set of stores to be completed in Sprint 2

***Sprint 2 (23/8/2021 to 22/9/2021):***

At the end of this sprint the team will demonstrate the set of interim goals proposed at the end of ***Sprint 1*** to the Client, where minutes will be recorded of the Clients

thoughts about the system.

As well as a final set of stories to see the project to completion, if the team is

tracking ahead of where it expected to be at this stage, the new stories will include

extensions to the project as originally envisaged. On the other hand, if difficulties

have emerged, the new stories may involve reduction in project scope. Both

situations will be negotiated with the Client.

***Sprint 3 (27/8/2021 to 18/10/2021):***

At the end of this sprint the final system is to be delivered to the Client, both as source code and as an installed systems on the Clients platform of choice. A demonstration of the project will be given to the Client and feedback will be obtained.