# High-level Roadmap

## Phase 1 - Gathering requirements

Weeks 1-3 (24 Mar – 13 April)

For this phase we will have short bursts of gathering requirements as well as research for the Smart Hydro project.

* During this phase, research and design will be tasks that will be iterated for the assigned member to carry out.
* Planning will be reviewed the team as well as project manager.
* No submission is final till the go ahead is given by at least 5 members.
* Gather the flaws of the previous codebase/architecture to build on
* Documentation will commence as research and designs for the system are put in place

## Phase 2 – Optimize existing codebase

Weeks 4-7 (14 April– 11 May)

During this phase a small team will be put in place to rapidly deconstruct the existing codebase. This is what to expect within this phase:

* Breaking down the logic of the current codebase.
* Taking the requirements from phase 1 into account for optimization.
* Creating basic pseudo code for the flow of logic from the old code base.
* Restructuring the code to make it easier to implement features.
* Iterations will be done to help cover all corners.

## Phase 3 – Acquire all materials needed to build the tunnel system

Weeks 8-10 (12 May – 1 June)

Here based on the research and design, we will need to take the research and acquire the materials needed for the tunnel. This will allow for us to buy the required materials, and this can help with building the tunnels system. Sensors and microcontrollers will also be gathered in this period

* Initially all members will be involved with gathering materials.
* 2 teams will be made to be put in rotation for the handling of the materials.
* Everything will be logged in the documentation to help trace back events.

## Phase 4 – Building the tent and integrating sensors

Weeks 11-12 (2 June– 15 June)

Here we will focus all the attention purely to getting the tunnel system up and running. This is where we will have rotations of teams ensuring that we get the tunnel up and running and physically installing the sensors as well as most of the required equipment to make the project work.

* We will rotate in between the morning and afternoon with 2 teams that will constantly rotate.
* We will make sure it is always monitored by people minimising risks.

## Phase 5 – Testing the tunnel system

Week 13 (16 June – 22 June)

Here we will test if there are improvements from the old tent system and look for weaknesses rounding up the physical structure of the tent.

## Phase 6 – Integrating the camera system

Week 14 (23 June – 29 June)

Here we will aim to:

* Integrate the camera system physically into the tent
* Attempt to successfully connect the camera to a demo project
* Test for any small imperfections

## Phase 7 – Manually implement micro-controller functionality

Weeks 15 – 17 (30 June – 20 July)

The main goal is to make sure that all micro-controllers are working as intended. This will be things to expect within this phase:

* Make sure that every sensor is reading correct data, passing it to the controllers.
* Making sure that the monitoring system functions manually
* Document and record our findings

## Phase 8 – Integrating automated micro-controller operation

Weeks 18 – 21 (21 July – 17 August)

Here all the AI models from post-graduate students will be incorporated into the mobile application. Some of the things to expect within this phase will be:

* Take requirements and research into account, integrate needed features as well as additional features.
* Ensure that all the micro-controllers are connected to the application
* Ensure that the user is still able to manually control the system from the application
* Fine tune the flaws from last year’s application
* Finalize the controller logic.

## Phase 9 – Testing the system

Weeks 22 – 24 (18 August – 7 September)

This is where we will do the final testing for the application ensuring that everything works as intended. It will work in the following manner:

* CI/CD testing on GitHub (automated tests)
* Manual testing on site
* Manual testing within the application
* Optimization

This will ensure that all bases are covered.

## Phase 10 – Deployment

Weeks 25 – 26 (8 September – 21 September)

The team will aim to make sure that the application will go live ensuring that everything is deployed smoothly from the database structure to the application and any services used etc.

* The full team of 7 will dissect deployment ensuring everything leading up to this point has been considered and documented.
* Finalizing any small tests left regarding the system.
* Ensuring smooth deployment for the application going live.

## Phase 11 – Quality of life

Weeks 27 – 29 (22 September – 12 October)

Any little tweaks that need to be made after the application will be introduced in this phase as well as any required performance enhancements.

## Phase 12 – Evaluation

Weeks 30-31 (13 October – 27 October)

This will be the overall take from the entire project, in terms of how well we worked towards the goals. This will be broken down into:

• The level and attention to detail in the way the project was carried out.

• The technologies used to make it possible

• If the choices made for creating the system were correct.

• What would be done differently if we could do it over again?

• What will we take from this project going forward?

These are some of the things that will be taken into consideration for the final evaluation.

This roadmap is subject to changes. Some phases may be taking place during the same period as another phase, if possible, to speed up development.