EWB PROJECT

By Group 70

PROBLEM IDENTIFICATION

Limited access to clean water

Floods which can damage homes, crops and livestock

Roads that are in poor condition and can be blocked by weather conditions

The region's main language is an 'oral' language, with low literacy rates

Locals need to know the conditions of the area and unsafe water sources

Lack of IT infrastructure and equipment

REQUIREMENTS: AGILE METHODOLOGY

- Small project
- Highly flexible
- Shorts sprints

RESEARCH: STAKEHOLDERS

The people of Pu Ngoal

Farmers who want to sell things in the village

Aid workers who would bring things to the village

Forest Rangers

Resin workers

RESEARCH: USER PERSONA 1

About

Forest Rangers

Volunteers who patrol the forests day and night to prevent illegal activities such as poaching, logging and mining which harm the local environment. They use radios to help coordinate their work.

Goals

- Want to protect the environment and local wildlife
- Want to stop those who harm nature reserve for their own benefit
- Want to communicate/co-ordinate with each other as effectively as possible
- Want to do their job as safely as possible

Challenges

- Restricted to using short-life radios and limited coverage, making communication difficult
- Poor quality roads can make patroling more difficult
- Limited number of available rangers

RESEARCH: USER PERSONA 2

About

Resin Collectors

Members of the local community who during the dry seasons, support themselves by collecting and selling resin from trees they own

Goals

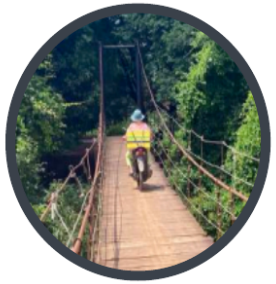
- Want to collect resin from the forest to support themselves in the months where they cannot farm
- Want to navigate and retrieve resin from the forest safely

Challenges

- Poor quality roads can make navigate the forest and transporting the resin challenging
- Poor weather can prevent people from being able to collect resin from parts of the forest

RESEARCH: USER PERSONA 3

About



Drivers

Members of the local community and surrounding areas who travel on the Pu Ngaol roads mainly by motorbikes with chains around their tyres

Goals

- Want to be able to travel to local towns and cities for trading or medical help
- Want to be able to navigate the local roads as safely as possible
- Want to be able to plan their routes and get to their destinations efficiently

Challenges

- Poor quality roads can make navigating the area dangerous
- Poor weather can make some roads unusable
- Limited information on the quality/usability of the roads they need to use on their route

RESEARCH: USER STORIES

Forest Rangers

As a forest ranger, I want to be able to record information on the quality of roads and floods to help inform my fellow rangers and make our work safer

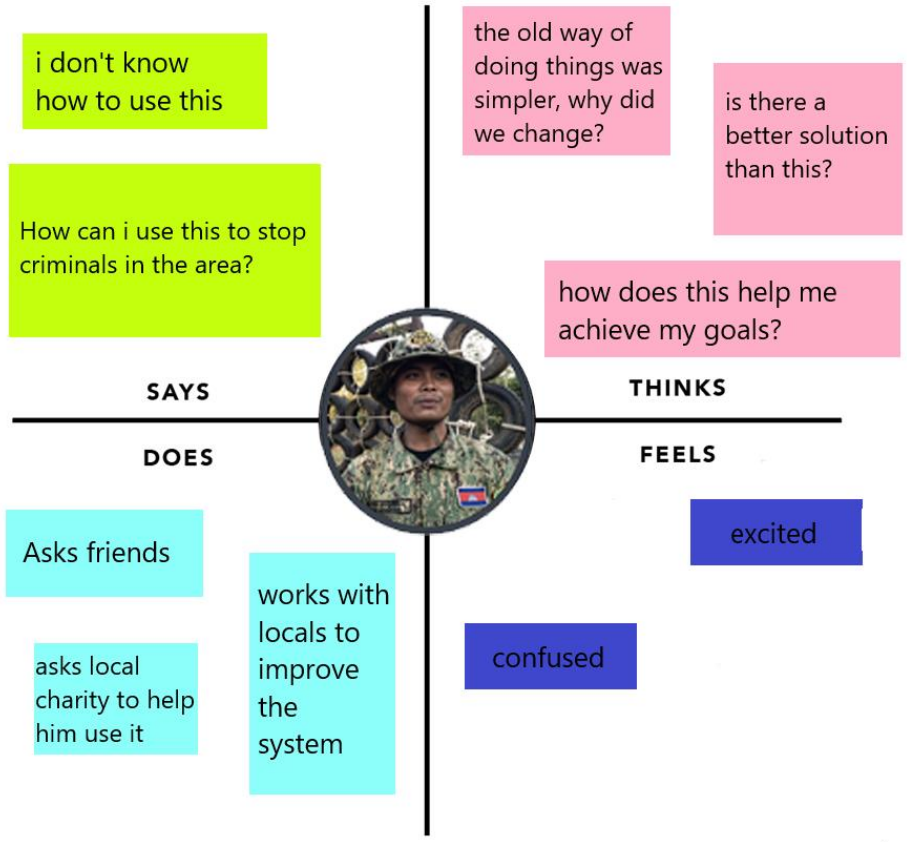
Resin Collectors

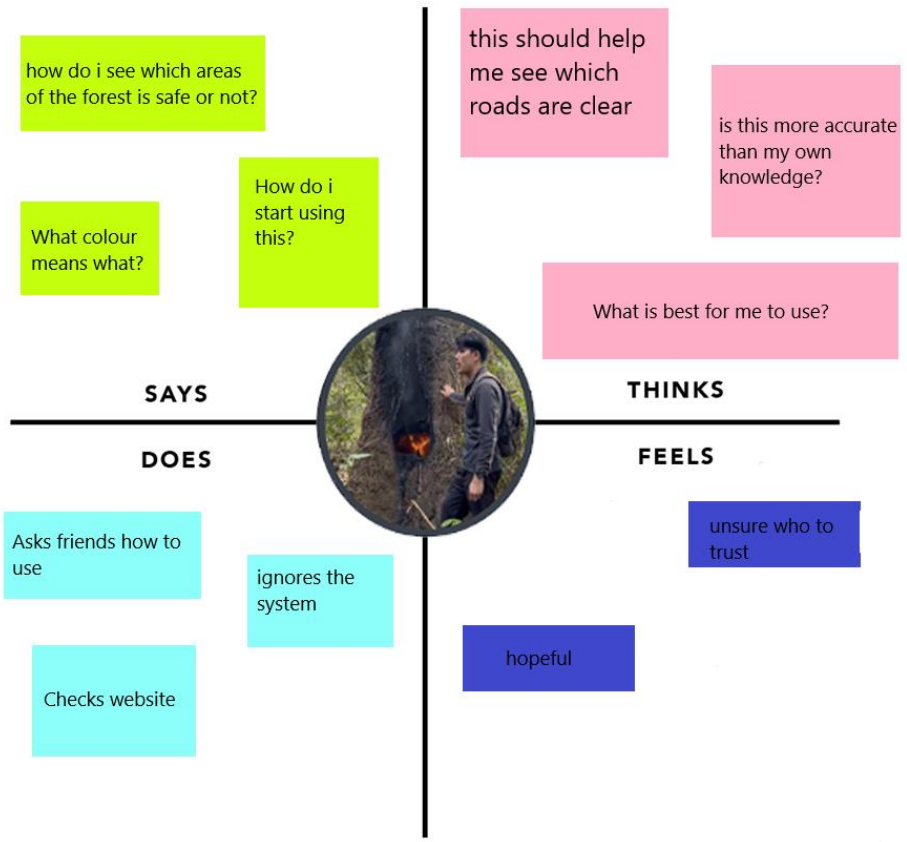
As a resin collector, I want to be able to find information on what parts of the area are flooded so that I can access and collect resin safely

Drivers

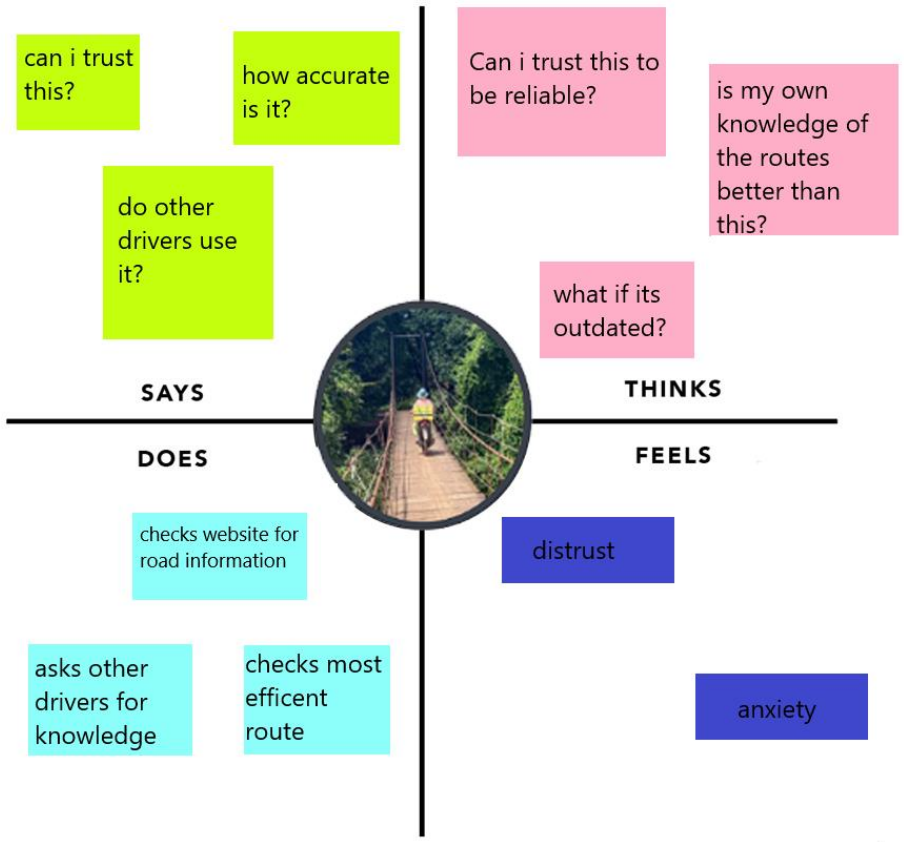
As a driver, I want to be able to view information on the conditions of the area so that I can plan a safe route for my journey

RESEARCH: EMPATHY MAP





RESEARCH: EMPATHY MAP



THE IDEA

A simple webpage where the local community can record the conditions of the area.

A satellite map of the local area

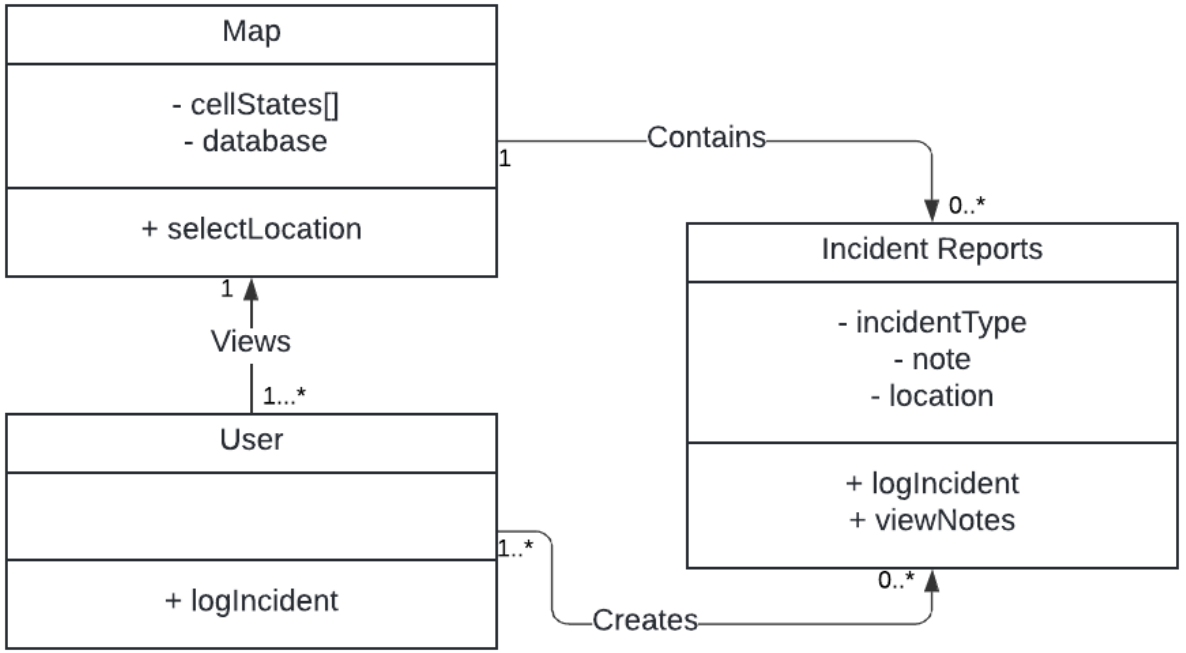
Highlight any severe/moderate water and road warnings

Add further notes (if required)

REQUIREMENTS: MoSCoW

Must	Should	Could	Wont
• Have a satellite map of the local area in a grid format • Each cell must be able to have a colour placed over them to represent its condition • Each cell must be able to have notes stored about it	• Have a key detailing all of the colours • Be locally hosted to improve security and accuracy of information	• Have a warning at the top of the page that indicates the weather for the next day using symbols • Message phones added to a database to inform them about unusable roads and water sources	• Message phones added to a database to warn them about extreme weather events coming

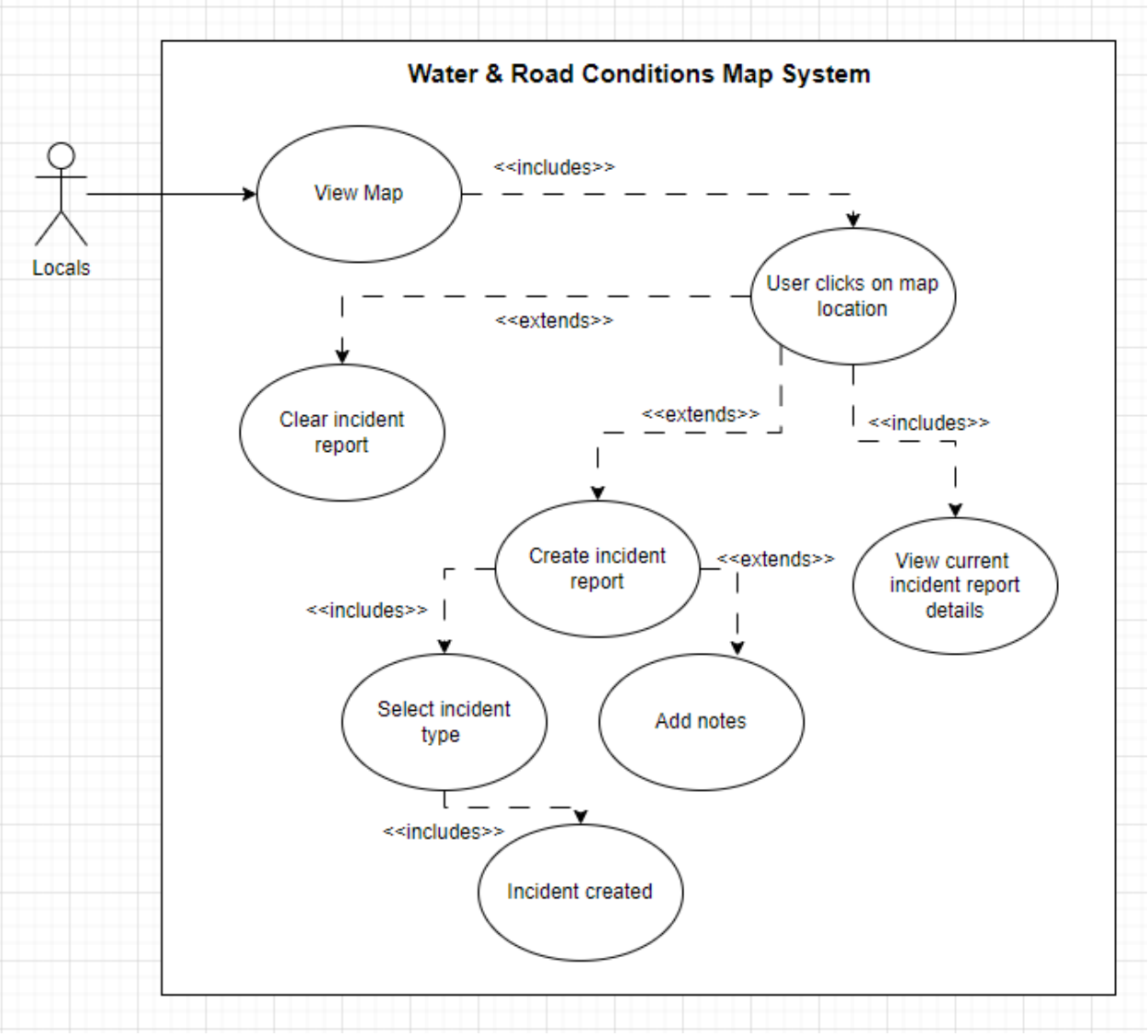
REQUIREMENTS: UML



REQUIREMENTS: USE CASE DESCRIPTION

Use case description for create incident report
Actors: Locals
Goal: Create a report of an incident in the area
Triggers: User accesses the system
Main flow: 1. View the map 2. Click on a location on the map 3. Select incident type 4. Add a note to the incident 5. Press submit
Extensions: 4. User does not add a note to the incident 5. Click on incident to view note

REQUIREMENTS: USE CASE DIAGRAM



SUITABILITY

This helps the local community record the conditions of the area

It can be used to identify:

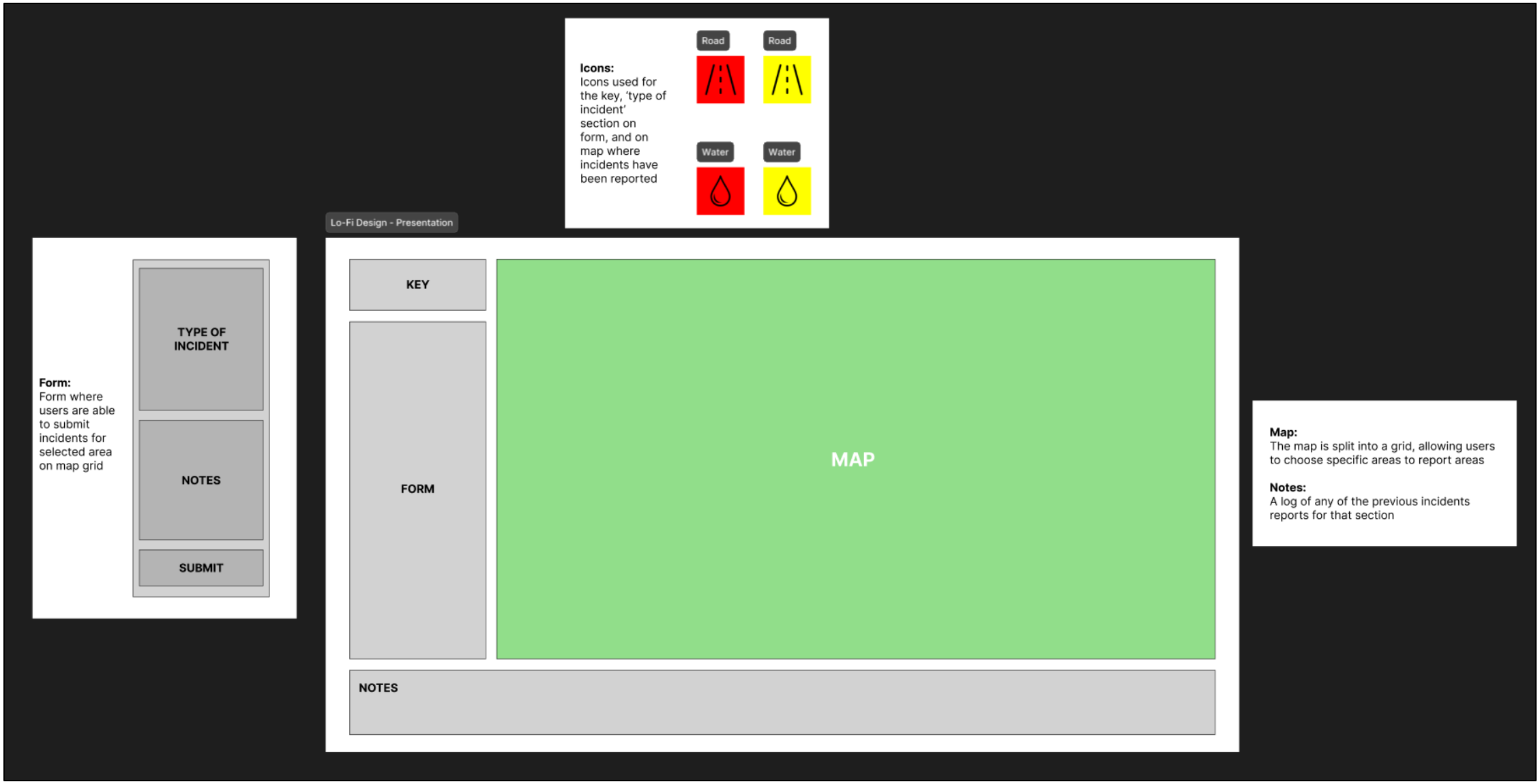
- Unsafe water sources
- Dangerous roads

Uses simple colour-coded icons to communicate information

The equipment we will supply them with is:

- Basic low power laptop
- Solar powered charger
- Water testing kits

LO-FI DESIGN


Icons:
Icons used for the key, 'type of incident' section on form, and on map where incidents have been reported
Road
Road
Water
Water
Lo-Fi Design - Presentation
Form:
Form where users are able to submit incidents for selected area on map grid
TYPE OF INCIDENT
NOTES
SUBMIT
KEY
FORM
MAP
NOTES
Map:
The map is split into a grid, allowing users to choose specific areas to report areas
Notes:
A log of any of the previous incidents reports for that section

TESTING

Test ID	Brief Description	Input Operations	Expected Outcome	Pass / Fail
1	Colour must change within 10 seconds	1. Click on cell 2. Click on different colour 3. Click confirm	Colour will change within 10 seconds	Pass
2	Notes must be saved	1. Click on cell 2. Enter notes about cell 3. Click confirm 4. Click back onto the same cell	Original notes should still be there	Pass
3	Webpage must work without internet	1. Disable internet connection 2. Load the webpage	The webpage should appear as normal	Pass
4	Colours must be restored when the website is opened	1. Change some cells colours 2. Close the website 3. Reopen the website	The colours should be restored	Pass
5	Notes must be restored when the website is opened	1. Add notes to a cell 2. Close the website 3. Reopen the website 4. Select the same cell again	The notes should still be there	Pass

USER TESTING

To gather feedback on the system, we demonstrated it to 3 test users and recorded their feedback on what they liked, disliked and potential improvements

User	Positives	Negatives	Improvements
1	• The layout of the website is clear and easy to understand • Good use of icons to indicate incidents	• Only a few different icons for indicating incidents	• Could add icons for additional types of incidents
2	• Forms are easy to create • Colour-coded icons make it very clear how severe incidents are	• The design is quite basic	• Animations would make the webpage stand out more
3	• Easy to understand what to do • Map is easy to understand with the symbols	• Hard to tell if you have clicked on the correct locations	• Could highlight selected cell

DEMO

CONCLUSION

Today we've covered:

- Some of the challenges faced by some of people in Pu Ngaol
- Our plan for a system that can help the locals by indicating hazards
- A demo of our implementation of the system
- Examples of how we've tested the system

THANK YOU AND ARE THERE ANY QUESTIONS?