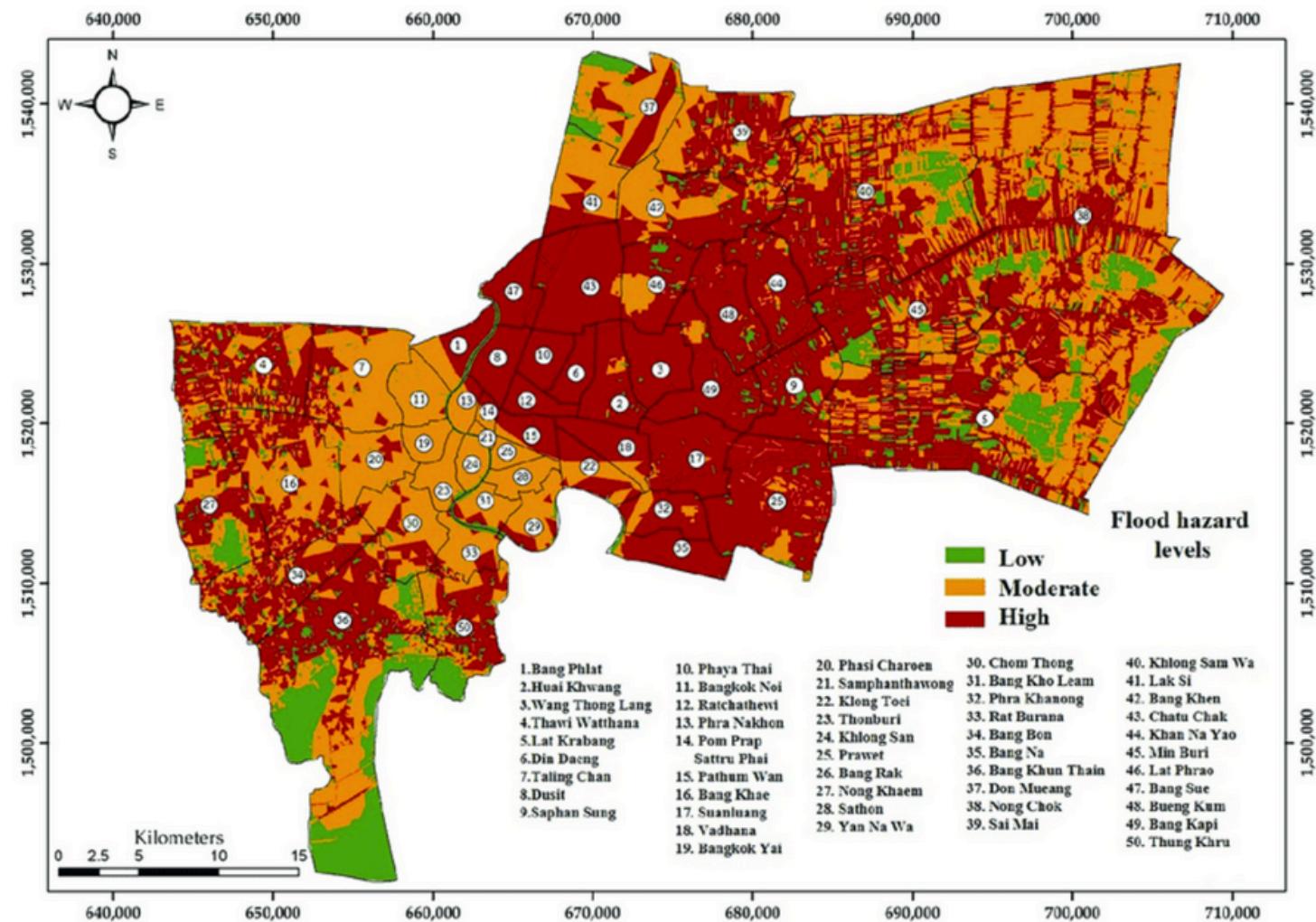


Deflood

Robot defeating the flood.



Statistics

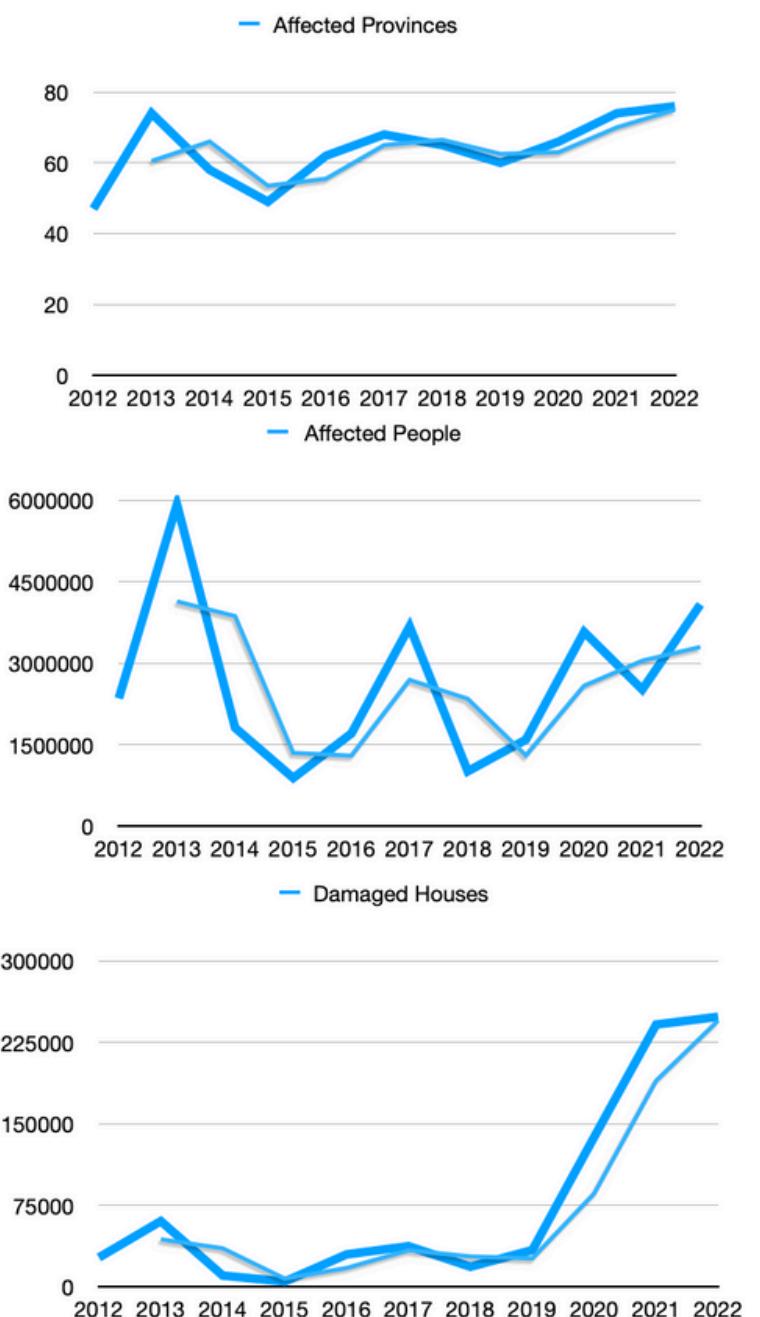


Hazard Heat Map



Flood stats. of past 10 years in Thailand

Year	Affected Provinces	Affected People	Damaged Houses
2012	47	2353027	26891
2013	74	5923380	60416
2014	58	1810748	10296
2015	49	885915	4707
2016	62	1706832	29769
2017	68	3678474	37345
2018	65	1009289	18398
2019	60	1593430	33773
2020	66	3576314	138077
2021	74	2515313	241480
2022	76	4083913	248634
Average	63.55	2648785	77253.27



Idea & Concept



Motivations

Main Problems is flood and has damage properties and makes economy plummet. Our team will motivates with AI-Powered robot



Concept

Tackle with Thailand's frequent flood with uses of robot to clear the clog by notify the systems and clean up the sewer



B to G & C

- Civilians: Benefits from less inconveniences due to floods.
- Government: Fundings and operations



The Persona



Name: Namphon I-oon

Age: 62 (but 21 at heart)

Job: Vendor

Side Job: Rapper

Story:

- Makes a living from selling items in her shop
- Unable to open shop during floods
- Has to go onto her roof to escape the flooding

Goals / Needs:

- No floods (please)
- Consistent income
- Safety

Location: Ur moms house, Bangkok,

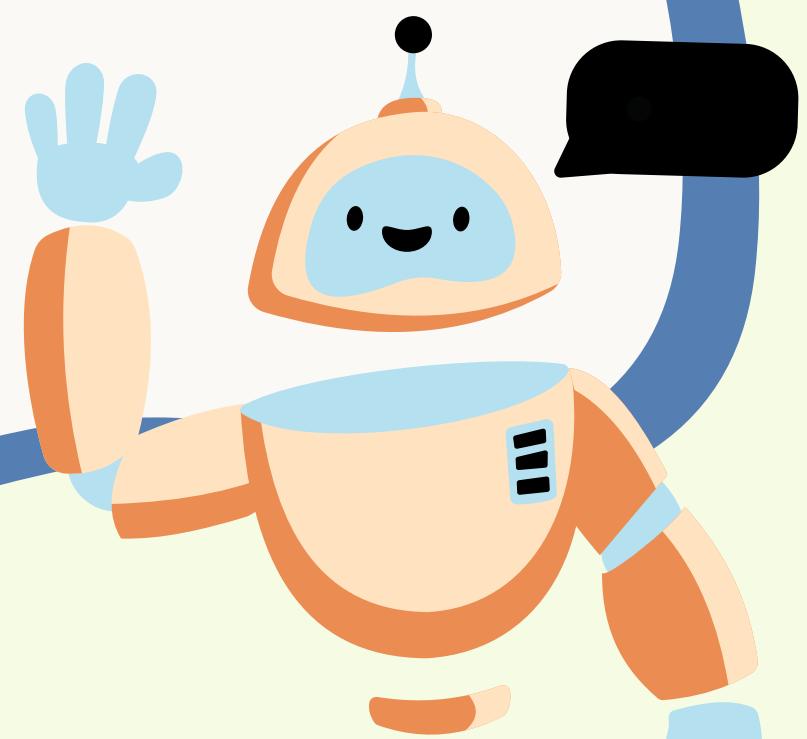
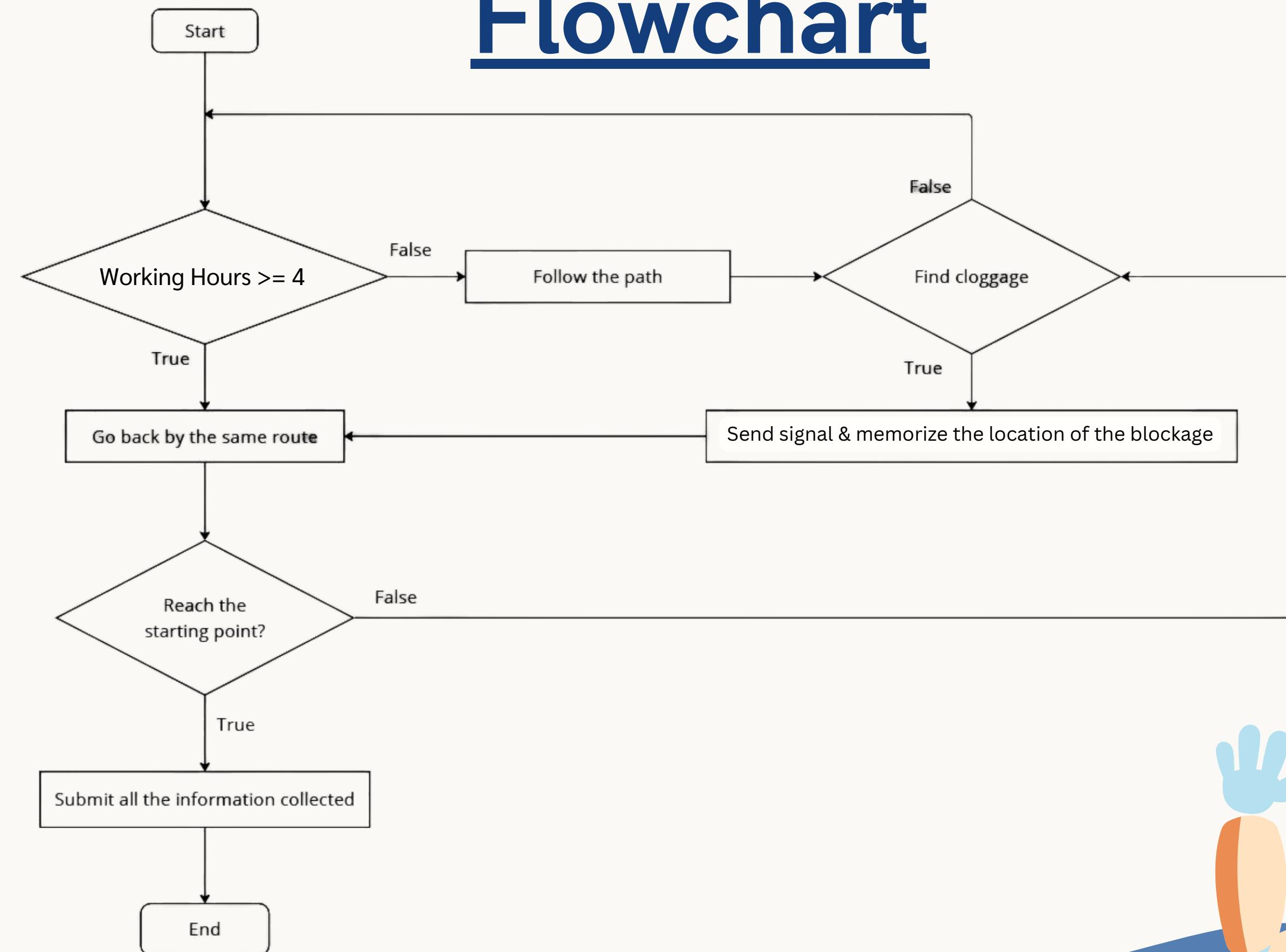
Thailand

Family Status: Single, Unmarried, Lonely

Frustrations:

- Loss of income
- Property damage
- Constant worrying

Flowchart



Dives to Tech

► Hardware

30,000 MAH BATTERY
TO RUN THE MACHINE
(10HR BATTERY)

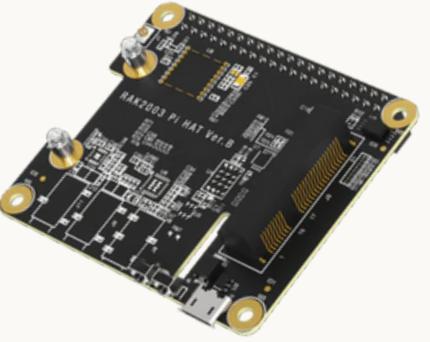


LIDAR SENSOR



DETECT THE ENVIRONMENT AROUND
(I.E. CLOG, PIPE, WALL)

SIGNAL REPEATER



REPEAT THE SIGNAL
TO LOCATE THE CLOG
AND SEND NOTIFICATION
AFTER DETECTION

POWER MANAGER
FOR RASPBERRY PI
(3.7 -> 5V)



MOTOR



MOBILIZING THE ROBOT
AND MAKE THE FINS WORK

***TOTAL COST: \$334**

***PER DEPLOYMENT: \$1336 (4 ROBOTS)**

RASPBERRY PI 5

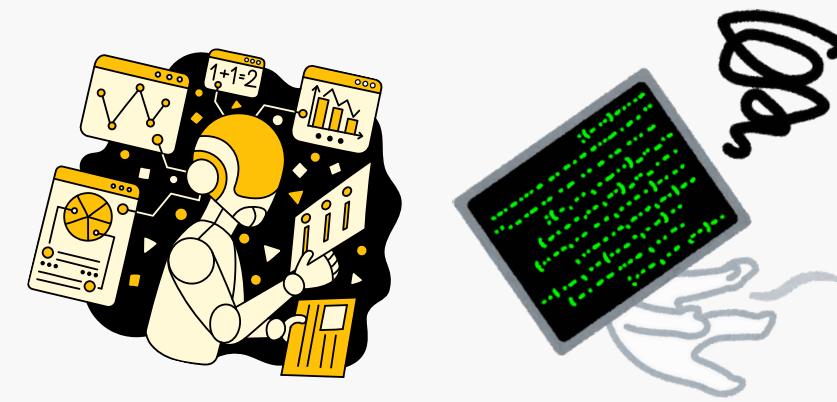


THE BRAINS AND BRAWNS
OF THE ROBOT

Dives to Tech

► Software

ML/RL



Classify whether the pipe is clear or not
and classify if it's clog, end of the pipe or clear

Python



Backbone of the machine
of how machine will run

TensorFlow Lite



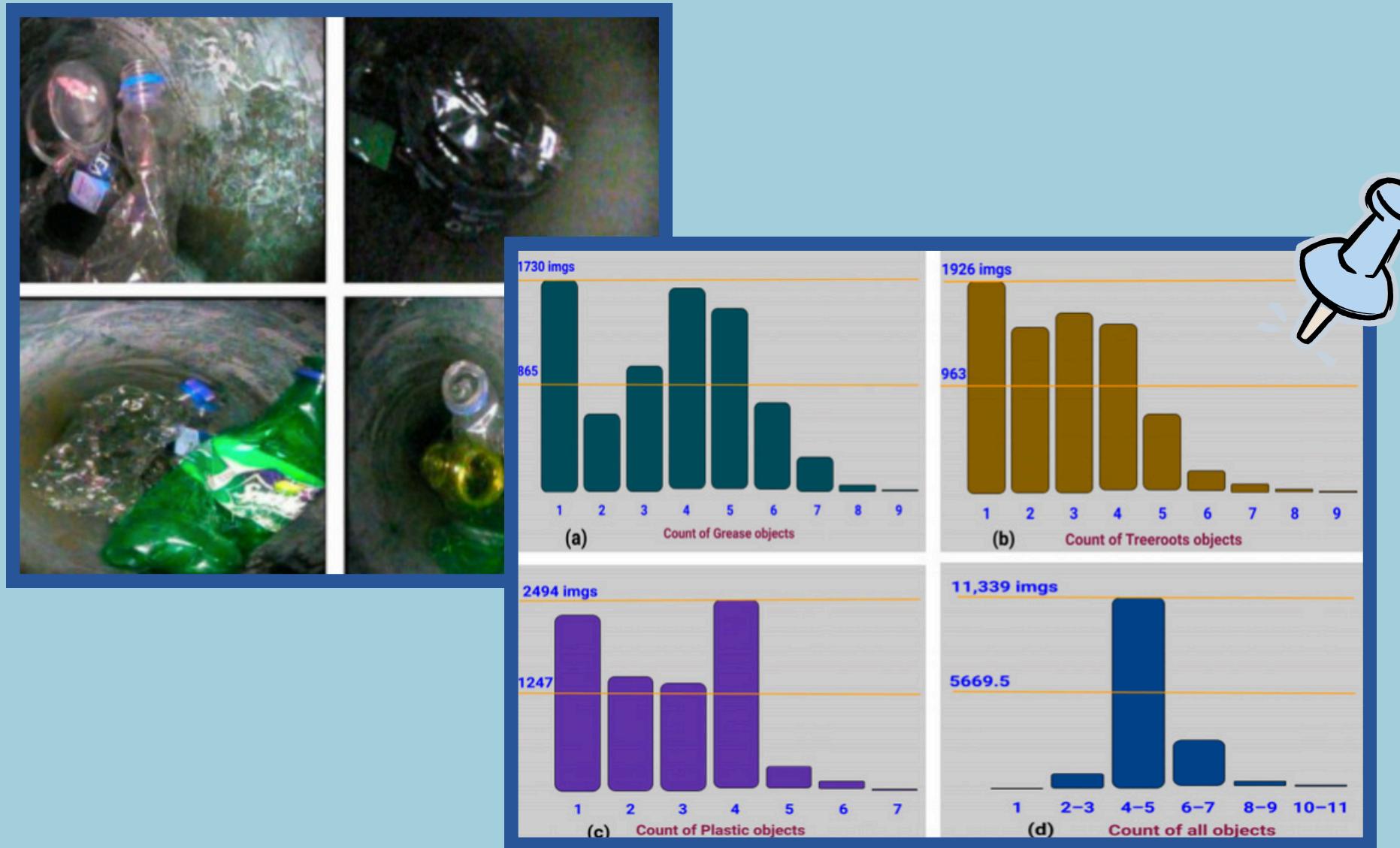
AI Model run offline during the work hour



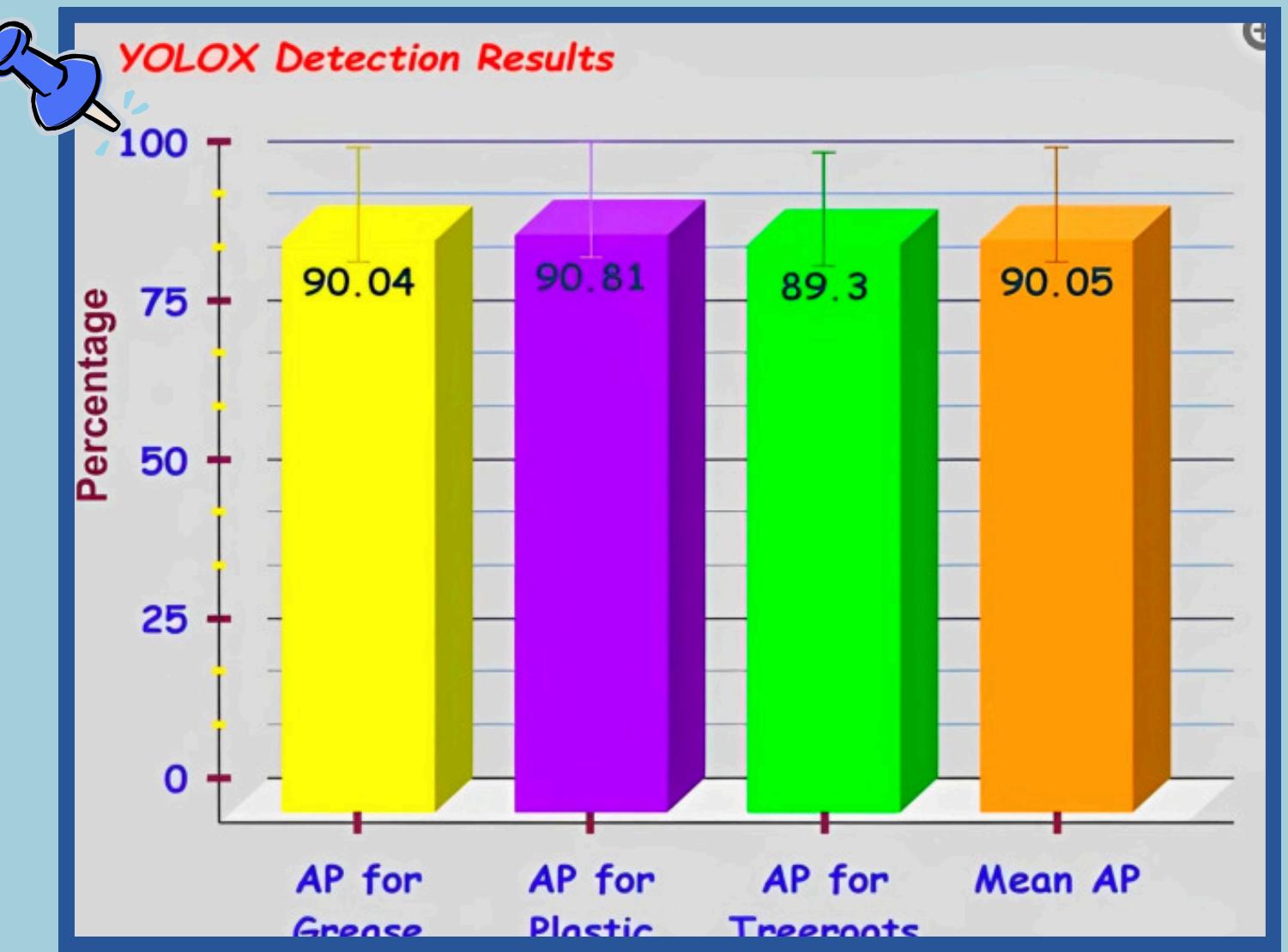
Proof of Concept, w/ Tech used



Example of the Dataset:



S.D. of the Detection:



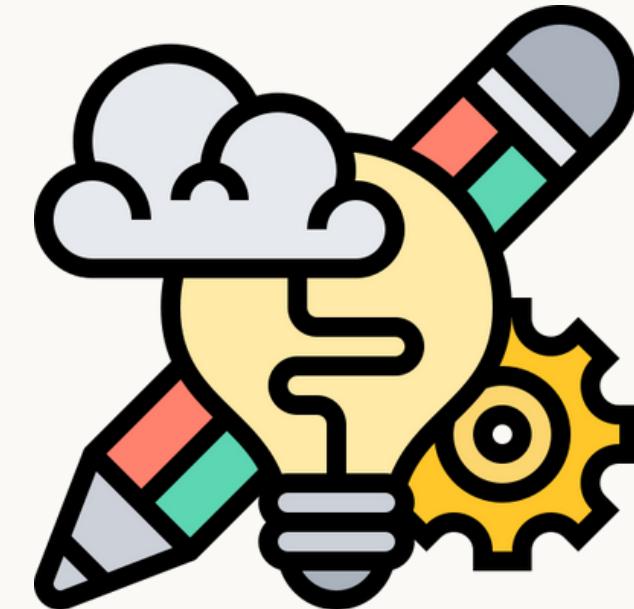
COMPETENCIES (THAT WE USED)



Design Thinking



We have used skills taught in Design Thinking a numerous times. For example, Design Thinking has helped solve problems such as; Perosnas and story-boards to reinforce our project.



Geographic Computing

Geographic Computing has also played a key role in mapping and tracking our robot as without this our robot would potentially get lost and would be destroyed.

Reinforcement Learning

Create an AI Model onboard from learn dataset within the device to detect the clog and notify the system



Reference and Information about Deflood

(All reference available within this document via QR code)



Q&A Session

(we know you want to know more about us)