CLEAN WATER MAPPING
AKA
PATRICK THE STAR EXPLORER

NASA Space App Challenge 2015

Al Akhawayn University In Ifrane

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OUTLINE:

- Introduction/ Background.
- Challenge.
  - Aim
  - How?
- Our solution.
- Future work.
- References.

INTRODUCTION/BACKGROUND

- The challenge of clean water.
- Access to drinking water is harder, especially in rural areas.
- Immediate solutions need to be found.
- Toughest challenge of our generation.

CHALLENGE

- The idea of **clean water mapping**.
- Being able to detect (map) clean water easily , for an easier access.
- This will allow us :
  - An easier access to drinking water available.
  - The real estimation of drinking water available on Earth.
  - Define areas based on how close/ far from drinking water resources they are.
  - As a result, work on the areas that are far from clean water, trying to provide them with it.

CHALLENGE (CONTD')

- Aim
- How?

AIM

- Create a mobile app that will be able to detect clean drinking water anywhere near .
- The app should provide PH level and temperature of the water resource chosen, in order to define whether this water is clean or not.

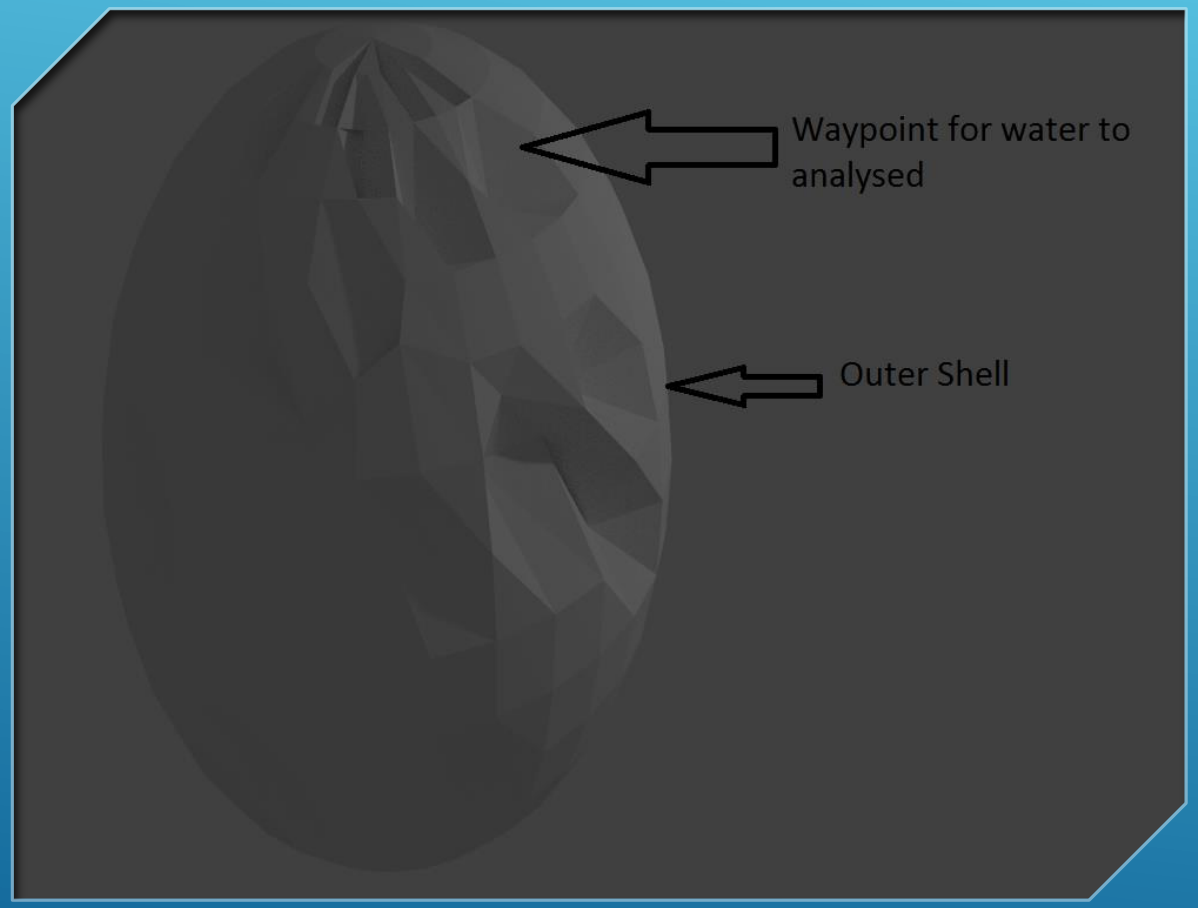
AIM(CONTD')

- ✓ A working prototype of the experiment.
- ✓ An App for cartography of the markers.
- ✓ An App for displaying the markers with a legend.

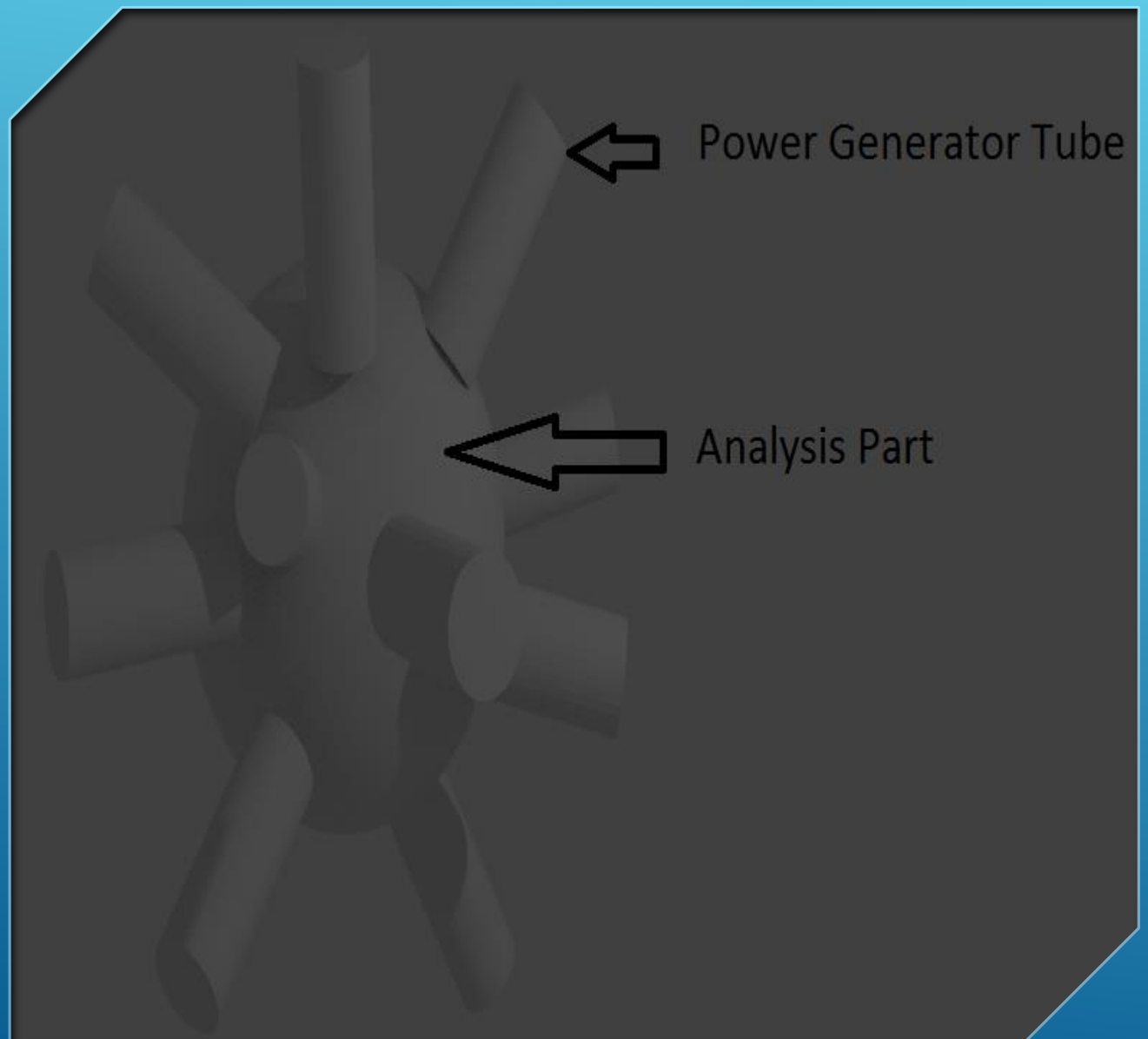
HOW?

- Designing a working prototype that will be able to distinguish from polluted water to a clean drinkable water.
- Implementing a broker so that the prototypes can communicate through a network using a GPRS Modem using AT Commands.
- Diffusing the data collected by the prototypes in a easy way through a browser, or IOS, or Android.

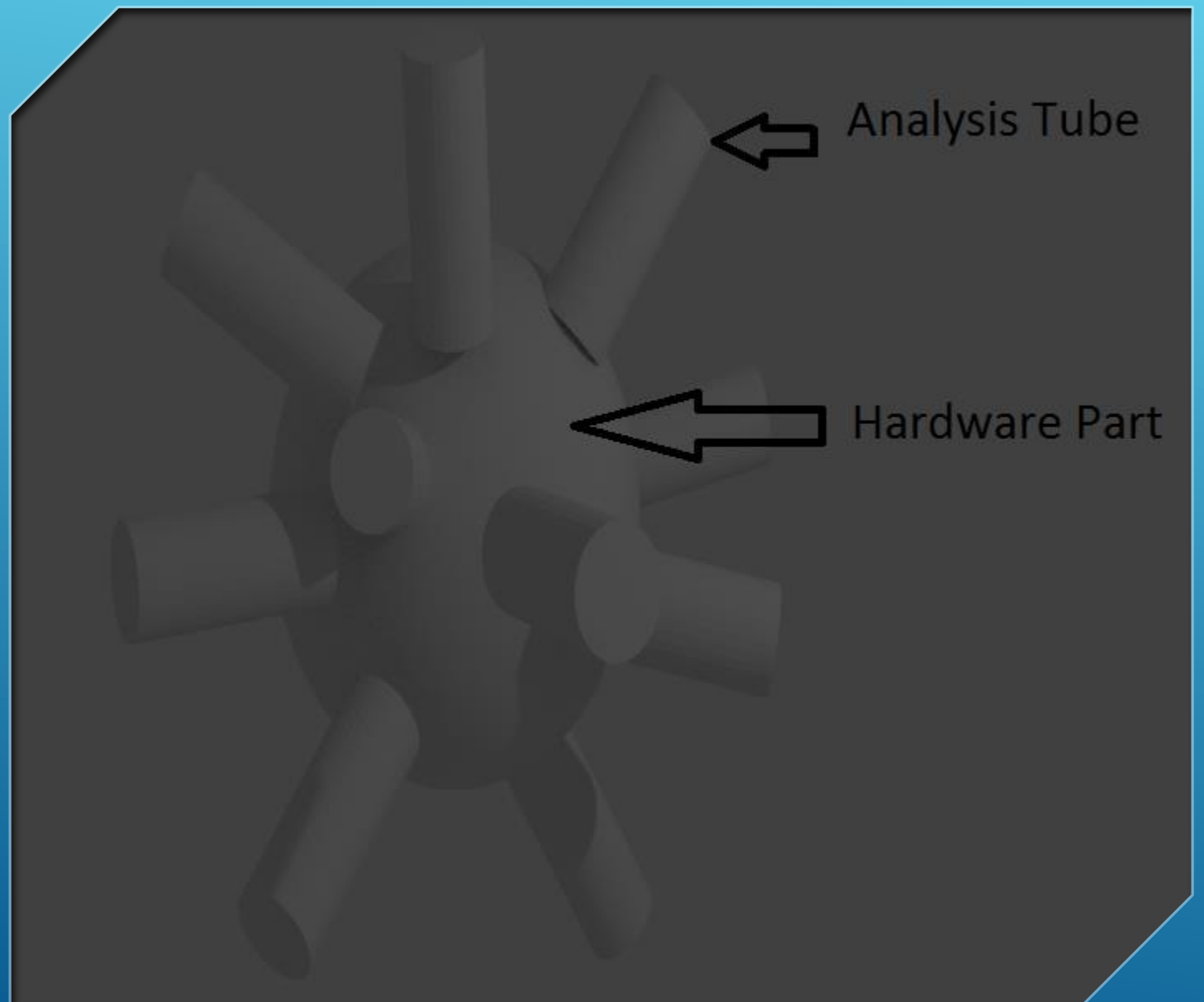
FULL DESIGN OF THE PROTOTYPE

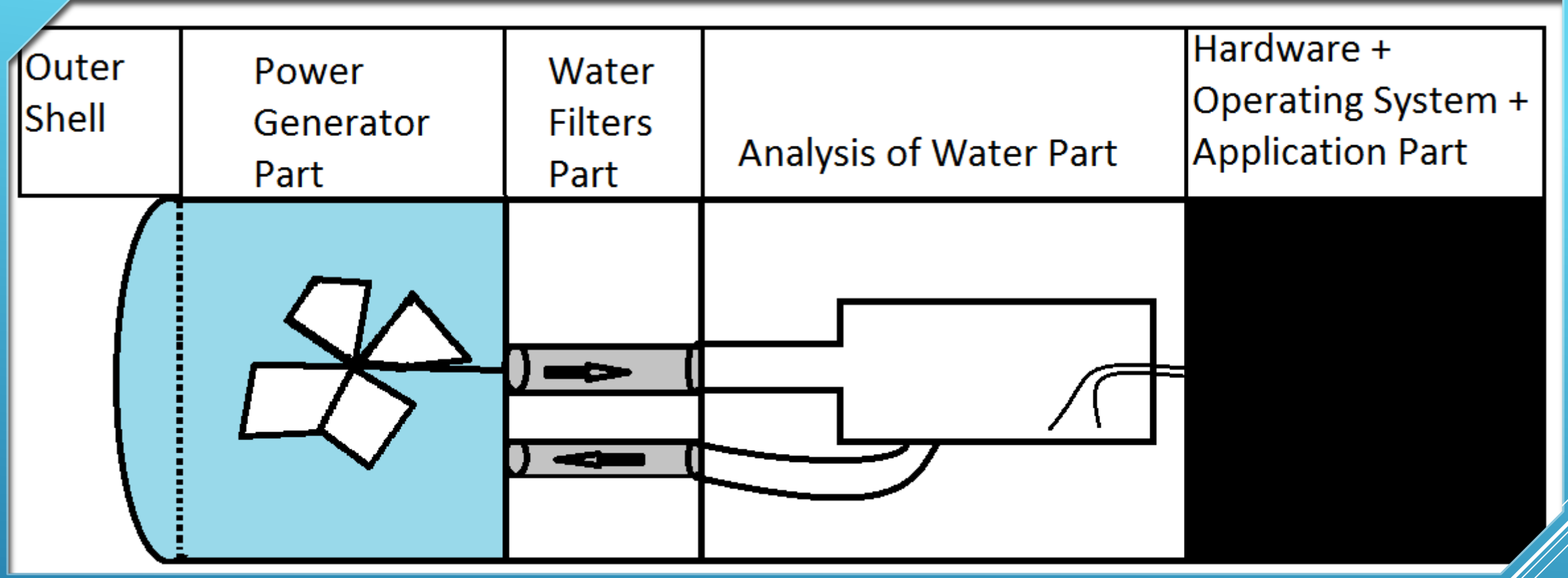


DESIGN OF THE SECOND SHELL



DESIGN OF THE INNER SHELL

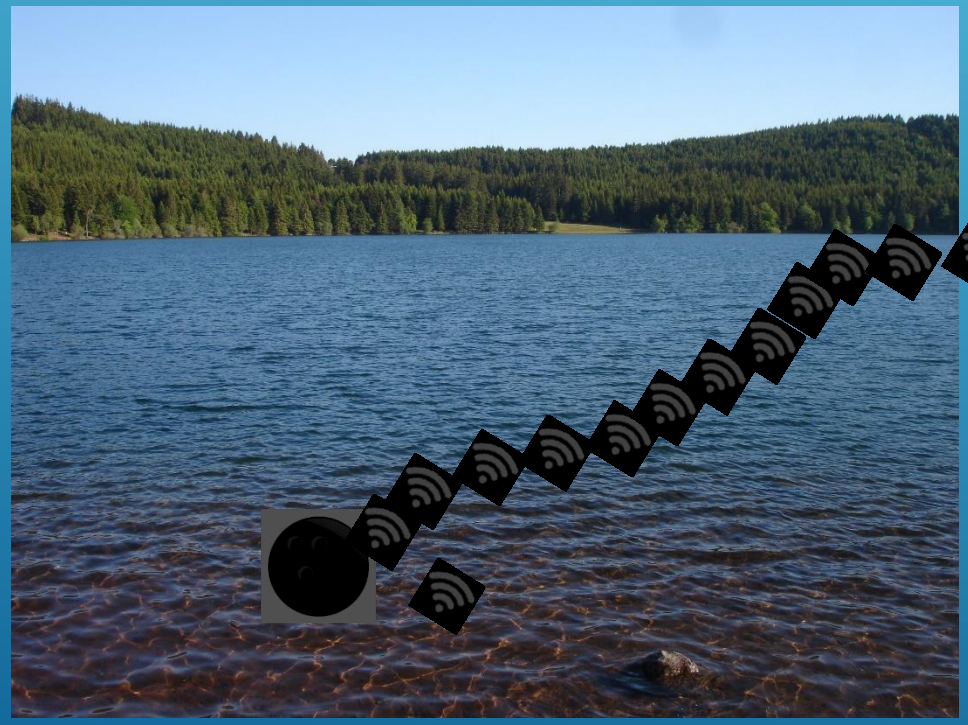


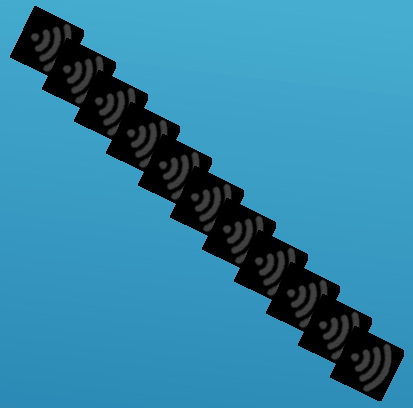


CROSS CUT VIEW OF THE PROTOTYPE

This image display the prototype in a cross cut view of the prototype

HOW DOES IT WORK ?





FUTURE WORK

- Clean water mapping the communities that nearby our university.
- Testing it in the Moroccan stream and river network.
- Make the prototype more accessible to the public.
- Designing a smaller prototype to reach narrow places.
- Explore new ways of communication other than using the Cellular Network.
- Explore new ways of detecting clean water by adding the support to detect Heavy metals and other toxic materials.
- Making this prototype more available for the communities that have a problem finding clean water in their area.

REFERENCES

- My Housemates
- **L'École Nationale Forestière d'Ingénieurs (ENFI)**
- Android.com
- IOS – Objective C
- Raspberry PI
- Nasa.org