

DRONES, DROIDS AND ROBOTS

HOW A ROBO CROC CAN CLEAN UP OUR WATERWAYS



T1 HARRIS

Have combined the Sea Bin, Solar Power, GPS, SLAM & IDEC plastic identification sensor technologies

To create a Robo Croc that can...

• DETECT SIX DIFFERENT TYPES OF PLASTIC

Did you know there are many different types of plastic? We want a Robo Croc that can detect many types of plastic rubbish that it may encounter.

REPLAS
RECYCLED PLASTIC PRODUCTS

PLASTIC

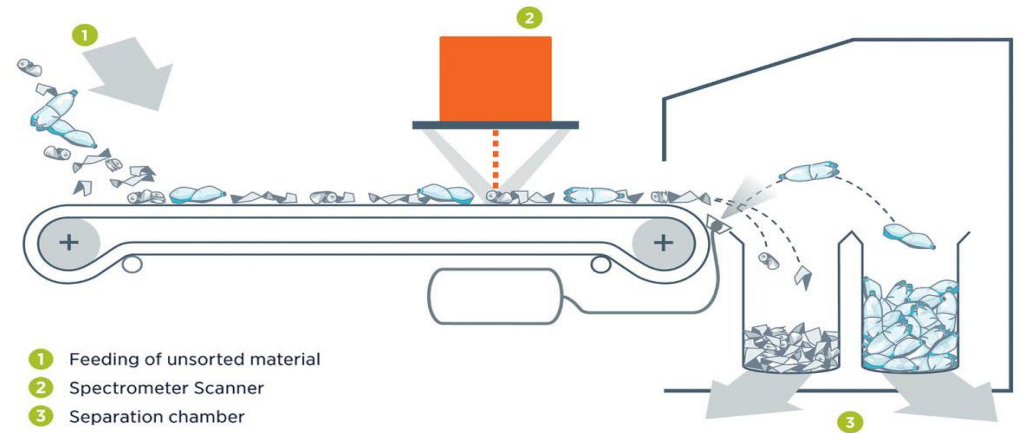
the types we recycle

 2 HDPE	Bottles Dispensing bottles Recycling bins Playground equipment	 4 LDPE	Plastic bags Grocery bags Tubing Laboratory equipment	 5 PP	Reusable bags Food containers Dishware Ice cream containers			
 1 PETE	Polyester fibres Carpet Soft drink bottles Panelling	 3 V	Pipe Flooring Shower curtains Non-food bottles	 6 PS	Cafeteria trays Plastic utensils Toys Styrofoam	 7 OTHER	Industrial fibres Headlight lenses Safety glasses Acrylic/Nylon	

- The main types of plastic include PET (polyethylene terephthalate), PE (polyethylene), PVC (polyvinyl chloride), PP (polypropylene), PS (polystyrene) and ABS (acrylonitrile butadiene styrene).
- Just like the IDEC recycling system, the Robo Croc will have two sensors; a proximity sensor to detect the presence of an object, and a plastic material sensor from IDEC.
- *"The plastic sensor detects different grades of plastic based upon the resonant frequency of each plastic. Different plastic molecules have different resonant frequencies and by tuning laser diodes to these frequencies, they excite the molecule of the plastic and are thus detected."* (Lanny Schuberg, IDEC product engineer manager)

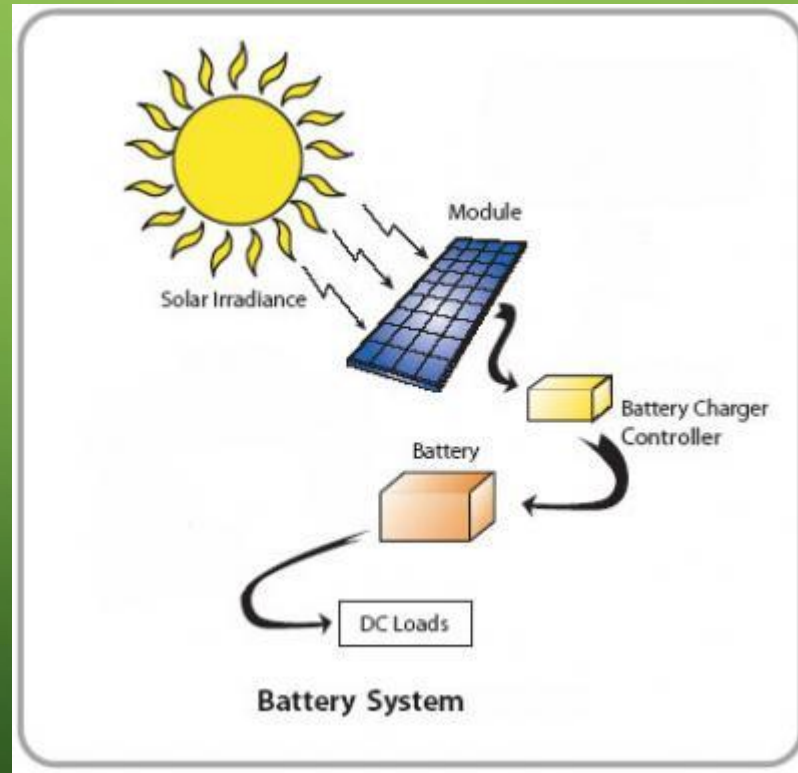


This is what an IDEC recycling system looks like. Our Robo Croc will have the same lasers used here to detect objects and plastic.



RECHARGE USING SOLAR POWER

- The Robo Croc will have solar panelling running down its back to generate its power from the sun.



USE SEA BIN TECHNOLOGY TO COLLECT THE RUBBISH

- The Sea Bin is an **automated rubbish bin that catches floating rubbish, oil, fuel and detergents**. It is designed for docks, inland waterways, residential lakes, harbours, ports and yacht clubs etc. (WEB & SEO, 2015)
- Watch the video below.
- <https://www.youtube.com/watch?v=tiy7WQYQyhY>

- Robo Croc will have the Sea-Bin technology built into it, allowing it to swim freely around waterways, rather than stationed at one particular spot.

We will have a water pump running through the robo croc,
sucking water in through is mouth
and coming out of the tail. Rubbish will be stored
in the belly of the Robo Croc.

GPS TECHNOLOGY & SLAM

- The Robo Croc will have GPS technology enabling it to be designated to a particular area.
- To track and record the Robo-Crocs movements
- The use of SLAM (Simultaneous Localization and Mapping) to enable the Robo Croc to autonomously know where it is and what is in the environment.
- This will ensure that the Robo Croc methodically scans a waterway, knowing when it has cleared a certain area and moving on to the next area.

- **SLAM is the same technology used in Robotic vacuum cleaners!**

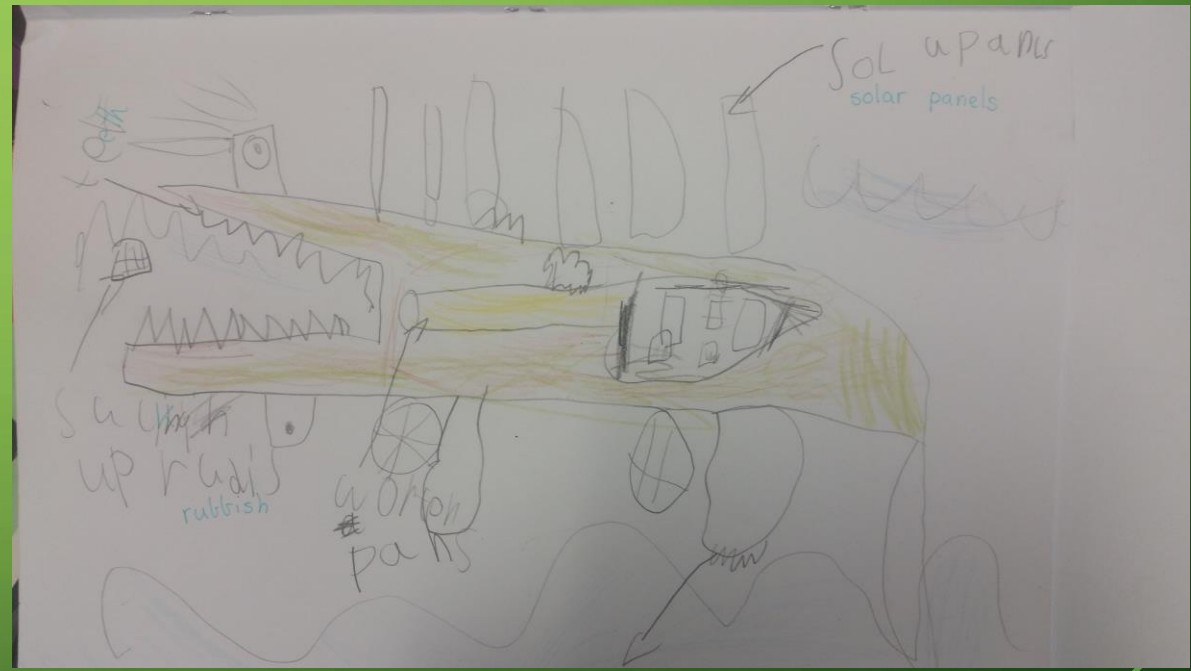
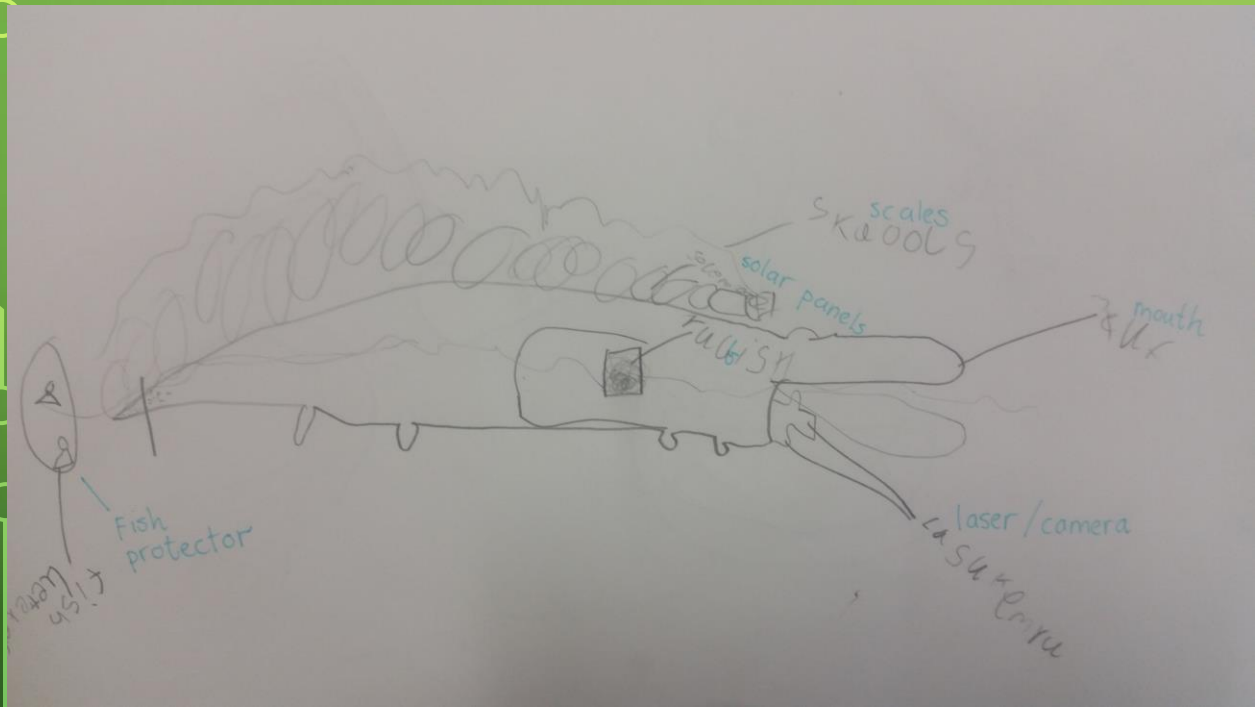


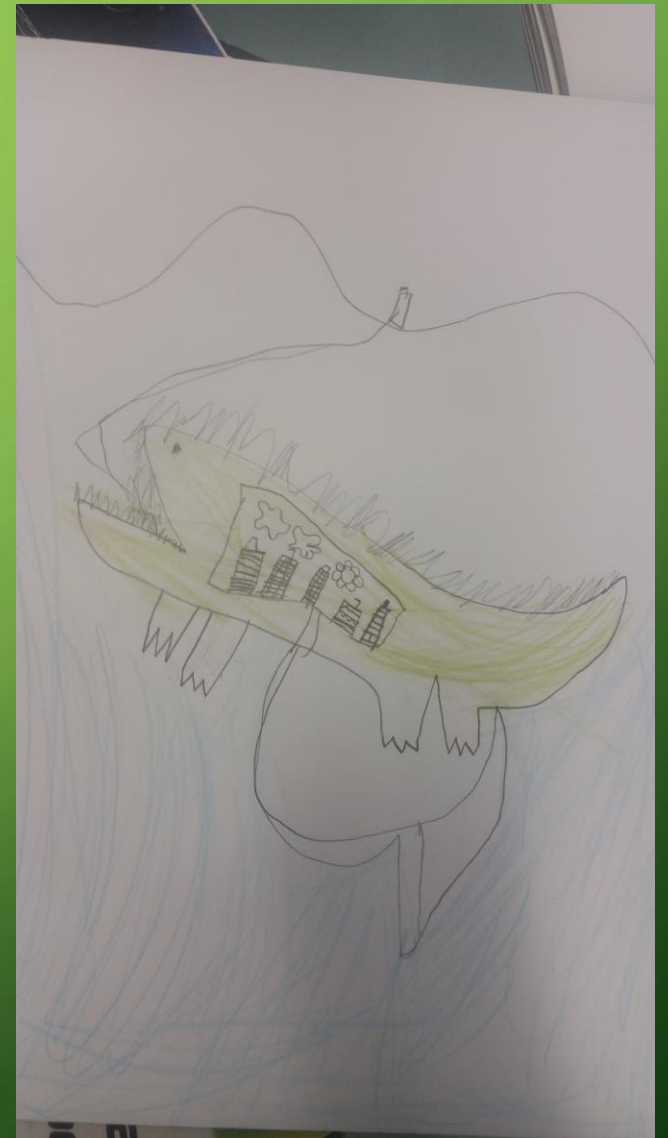
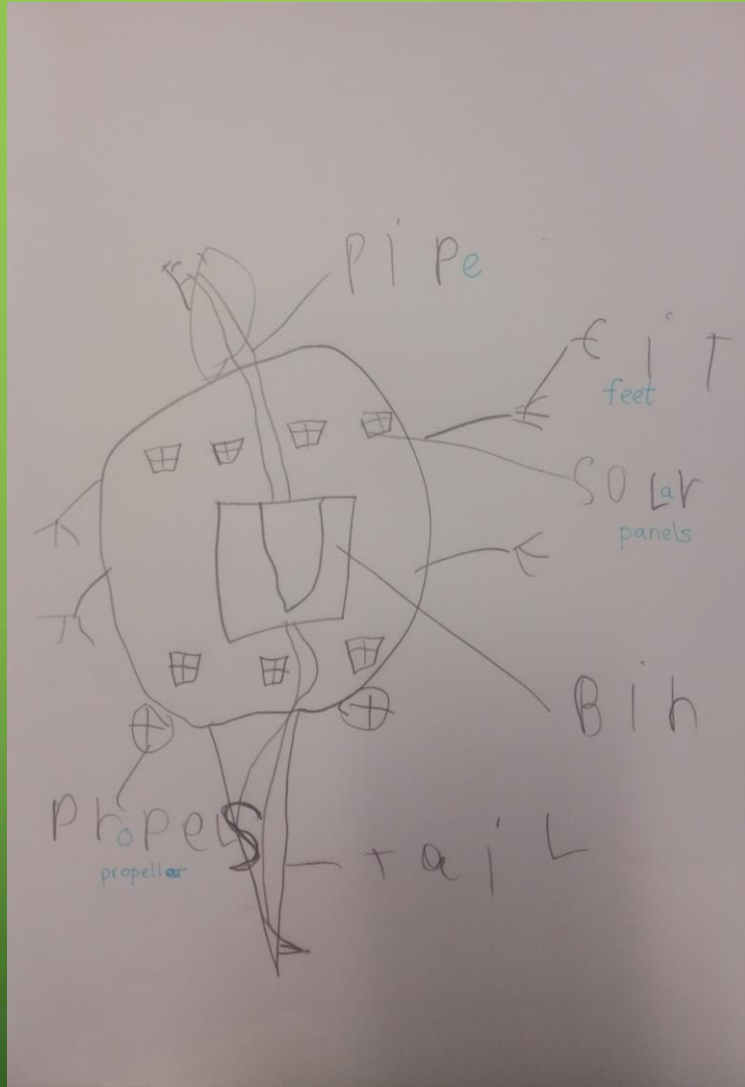
WATER-BASED DRONE TECHNOLOGY

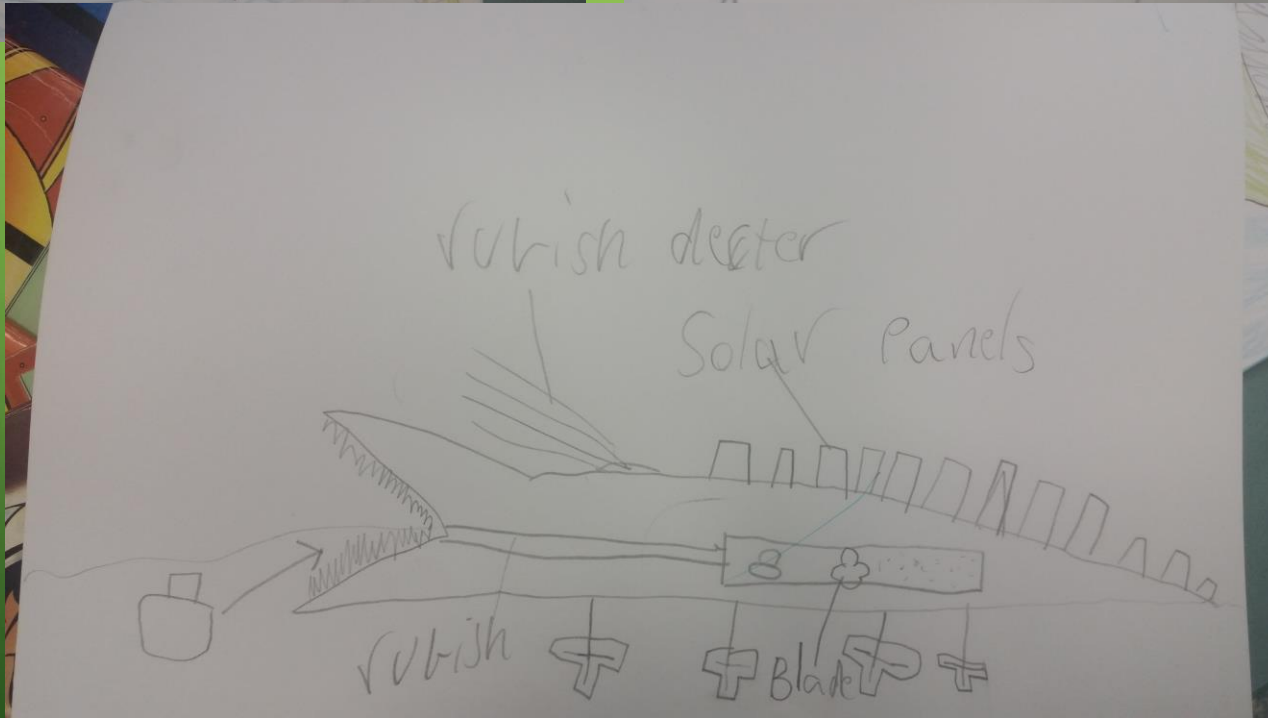
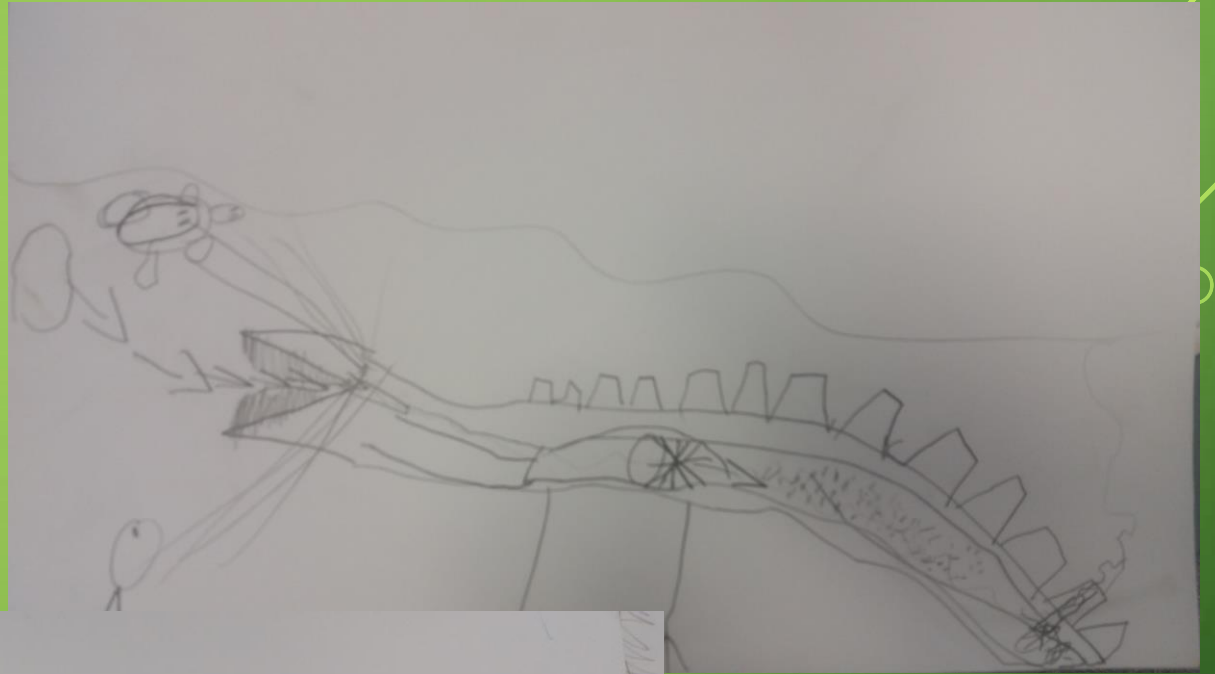
- Robo Croc will have a water-based drone body that will enable it to become fully submerged if needed but also allow it to cruise effortlessly on the waters surface.



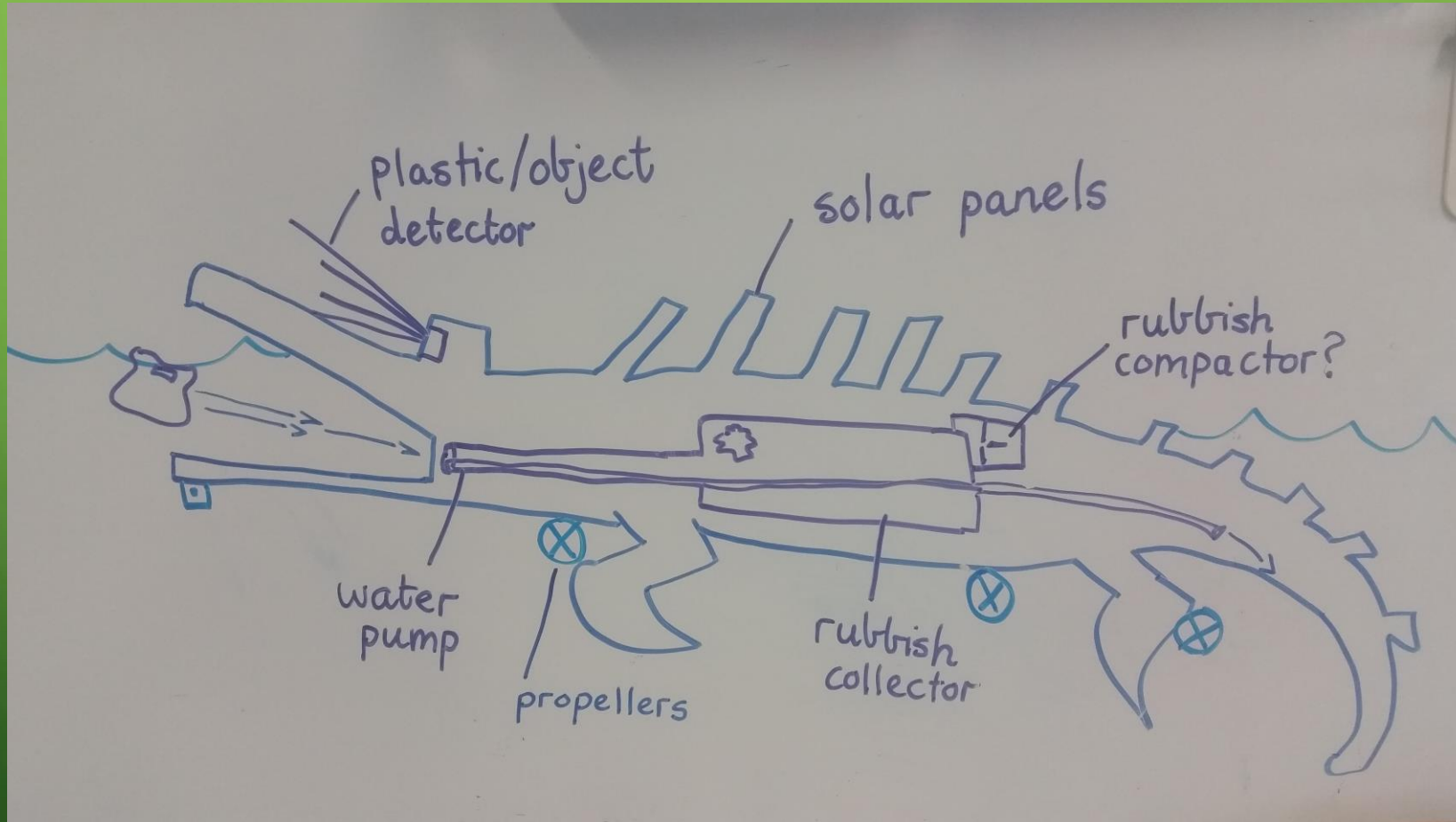
HERE ARE PHOTOS OF OUR PLANNING & DESIGNS



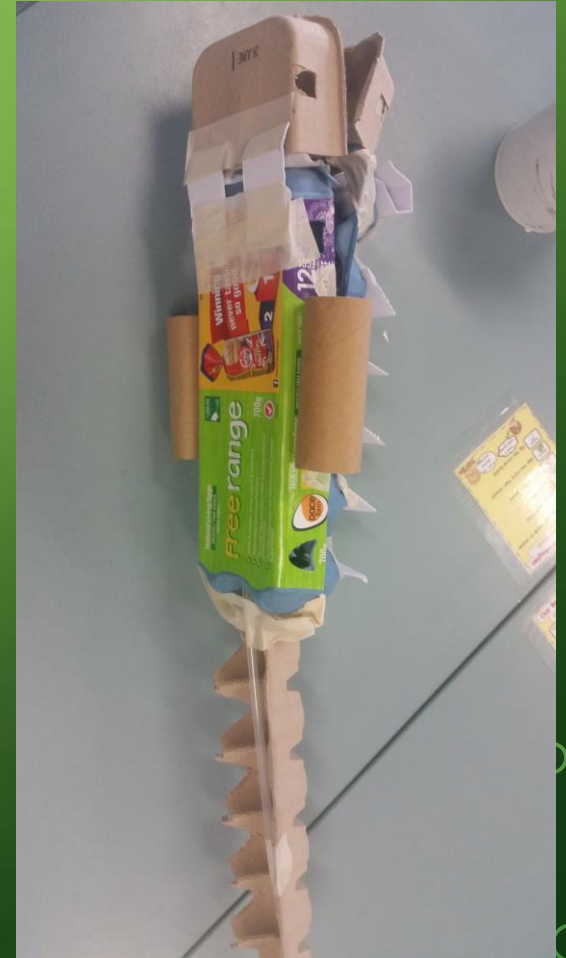




WHAT OUR IDEAS LOOK LIKE WHEN COMBINED



OUR MODEL OF ROBO CROC



THANK YOU FOR SHARING OUR PRESENTATION



REFERENCES

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