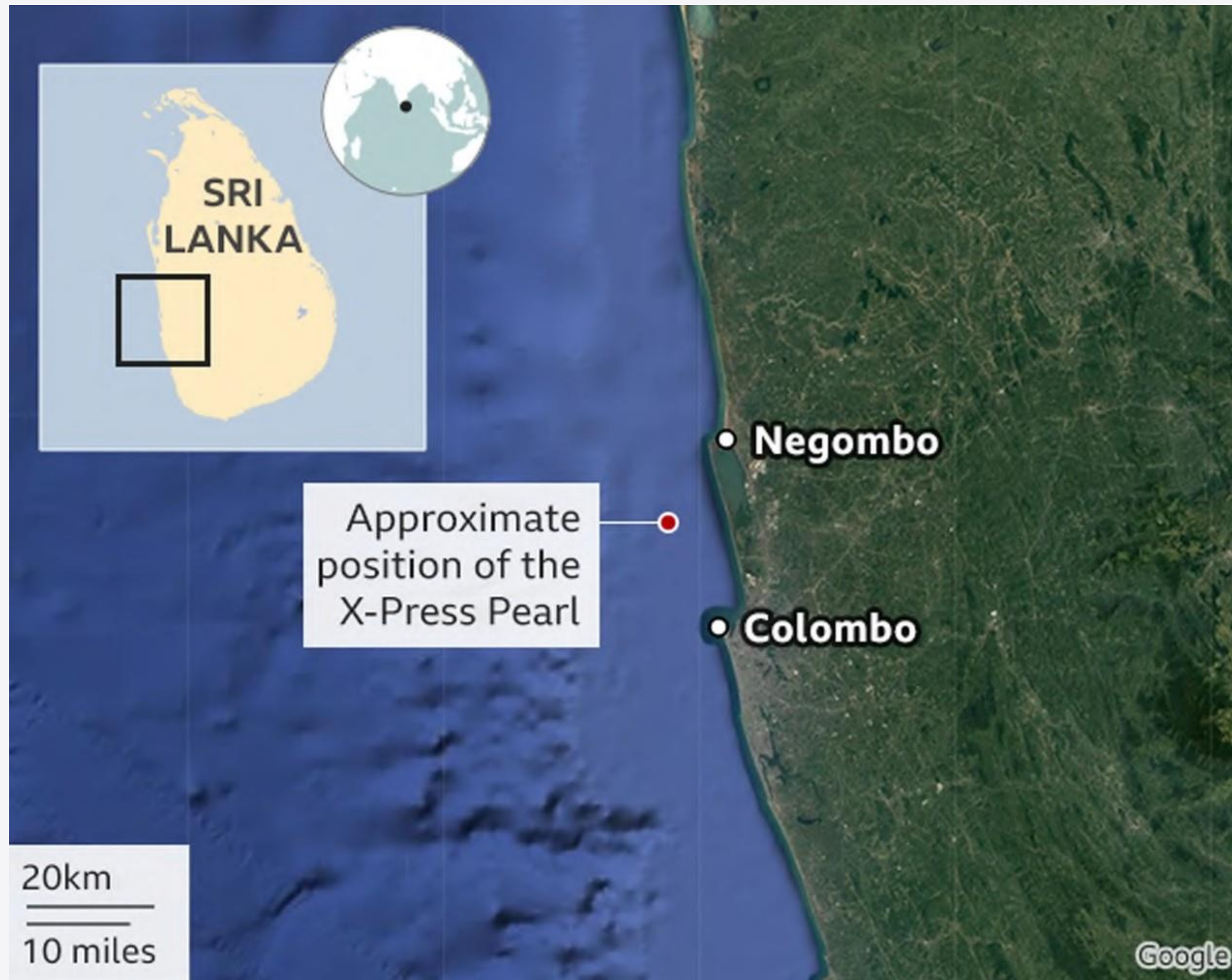


AI-Assisted intelligent Marine Floating Debris Collector

Development Goals-Life on Land

S.Sivasthigan
R.Hariharan
M.Thanoraj

The X-Press Pearl Disaster



Post Disaster



Plastic pellets



Coastal Cleanup

Problem Domain

1



2



3

Removing the
marine debris

Tiny particles
cannot be seen
through satellite
images

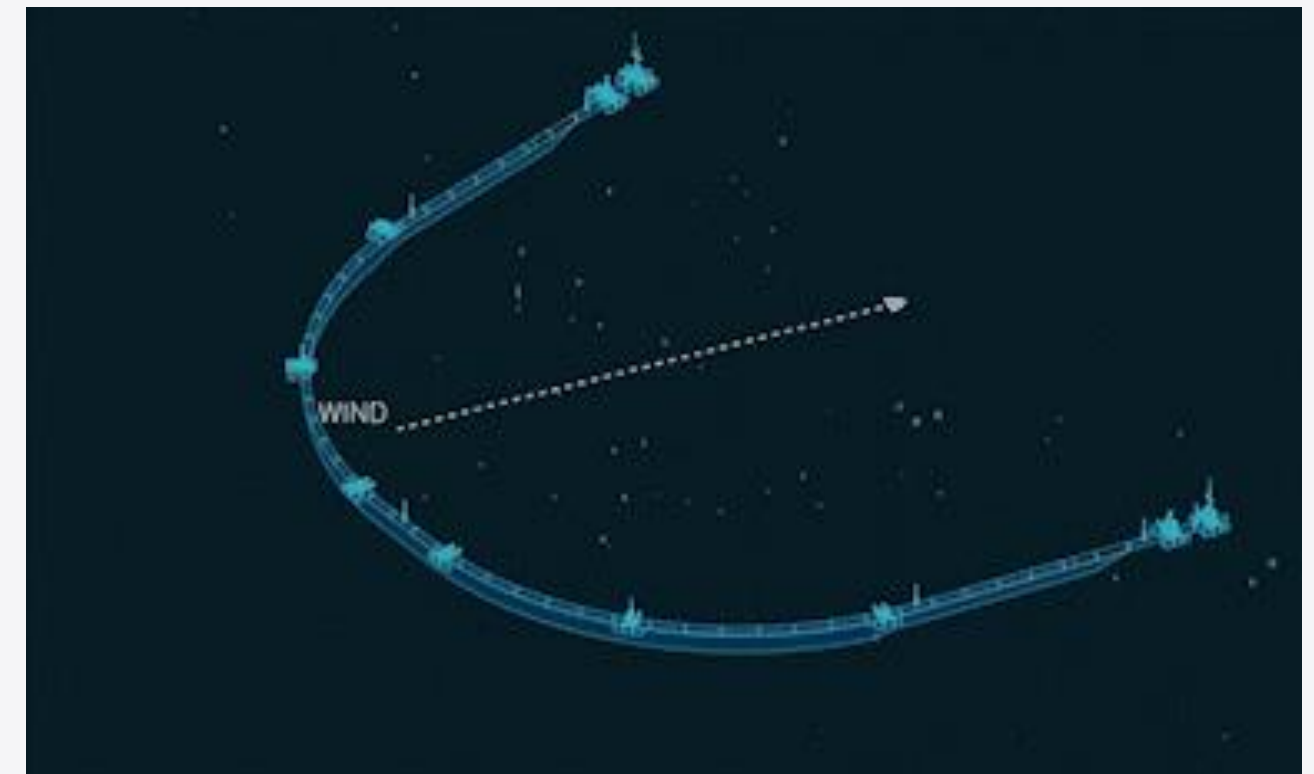
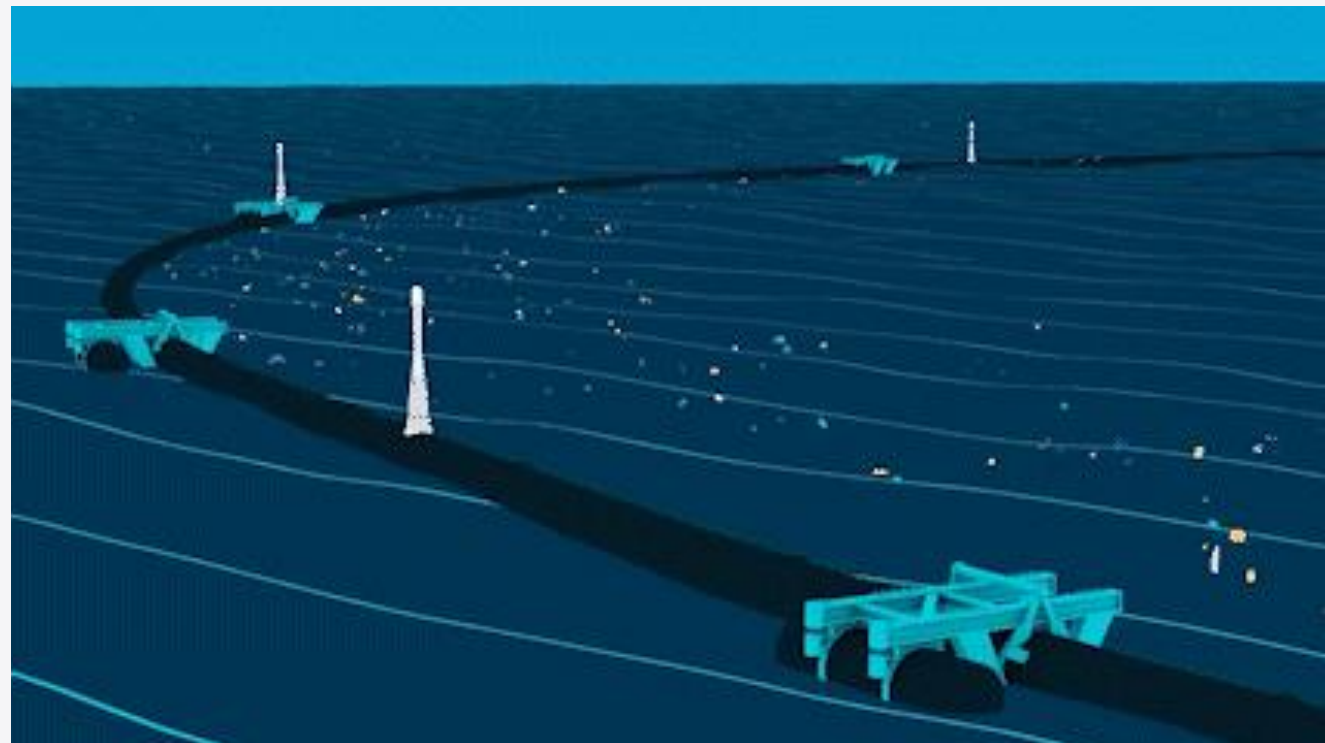
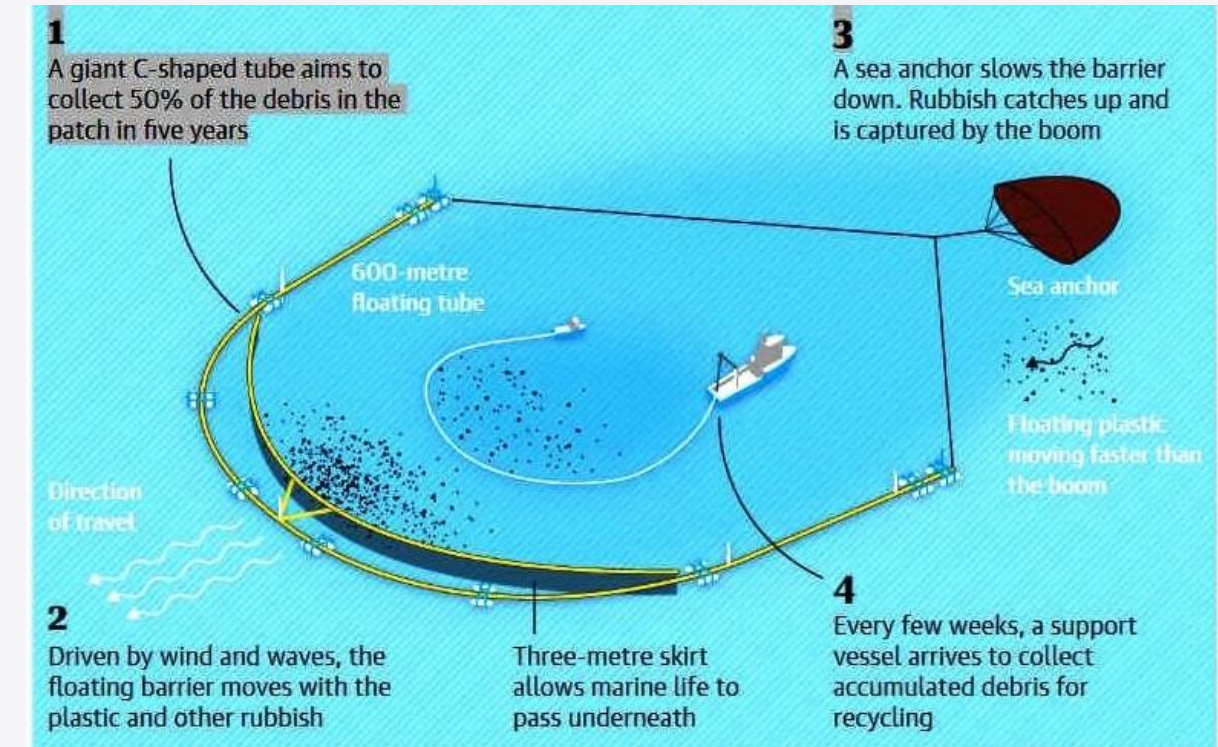
Collect them
effectively (with
low fuel cost)



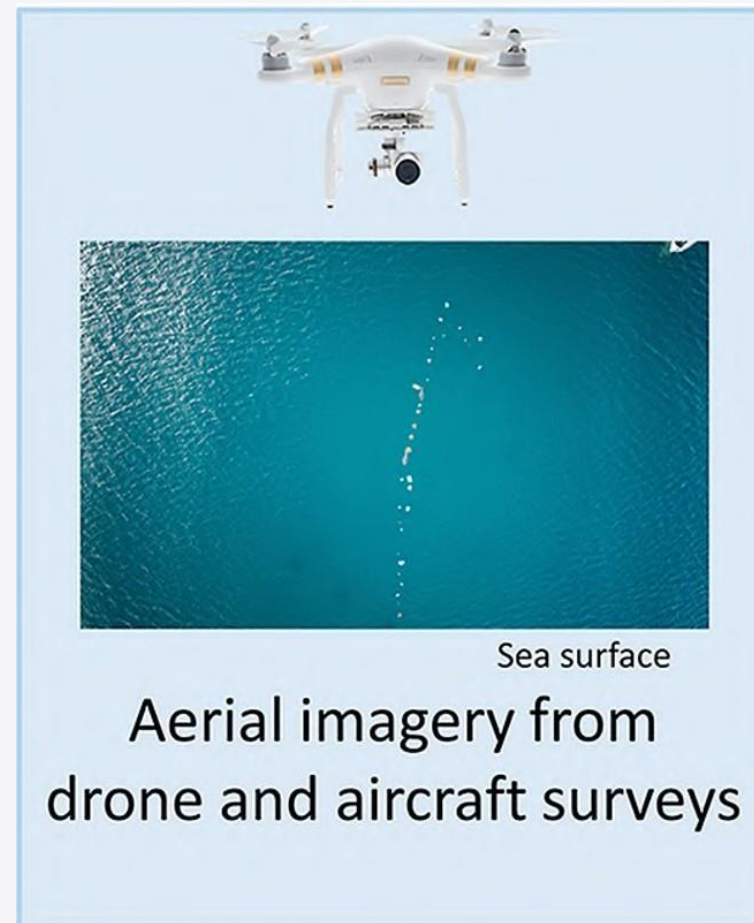
Inspired from traditional debris collection method



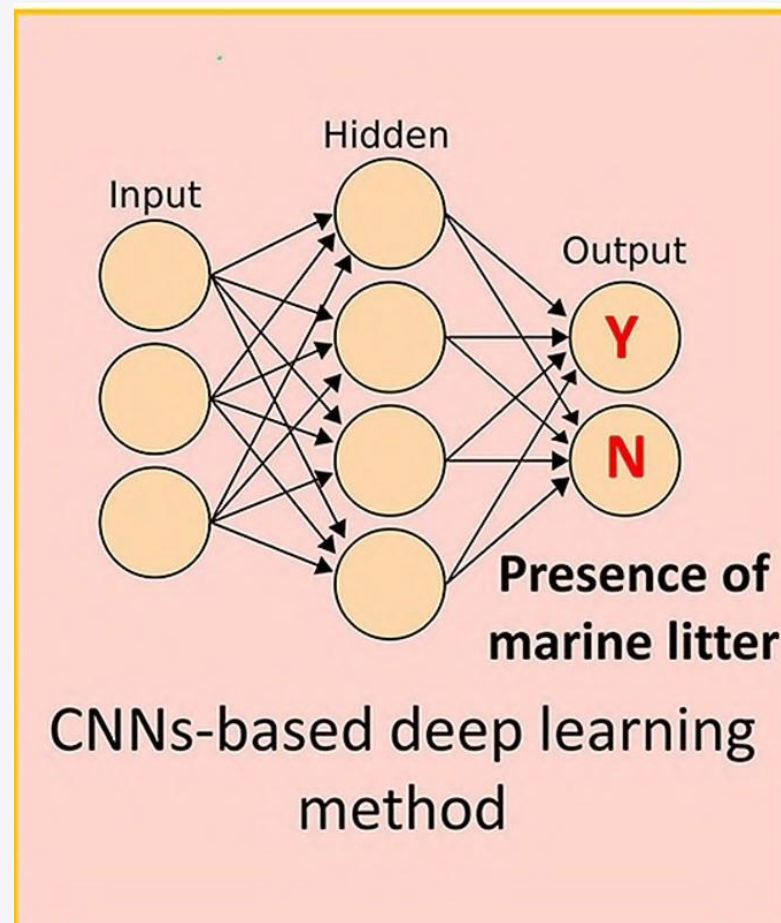
How cleaning process takes place



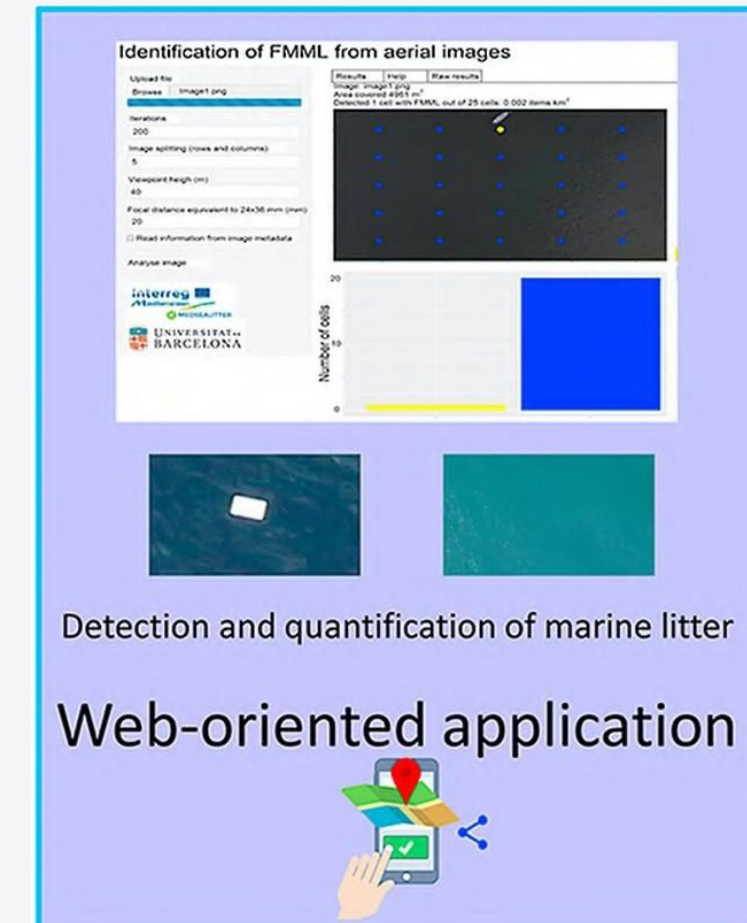
Solution



Drone taking pictures of the
ocean landscape



System finding the positions of
marine debris



System calculating the shortest way using Dijkstra
algorithm to collect them

Artificial Intelligence

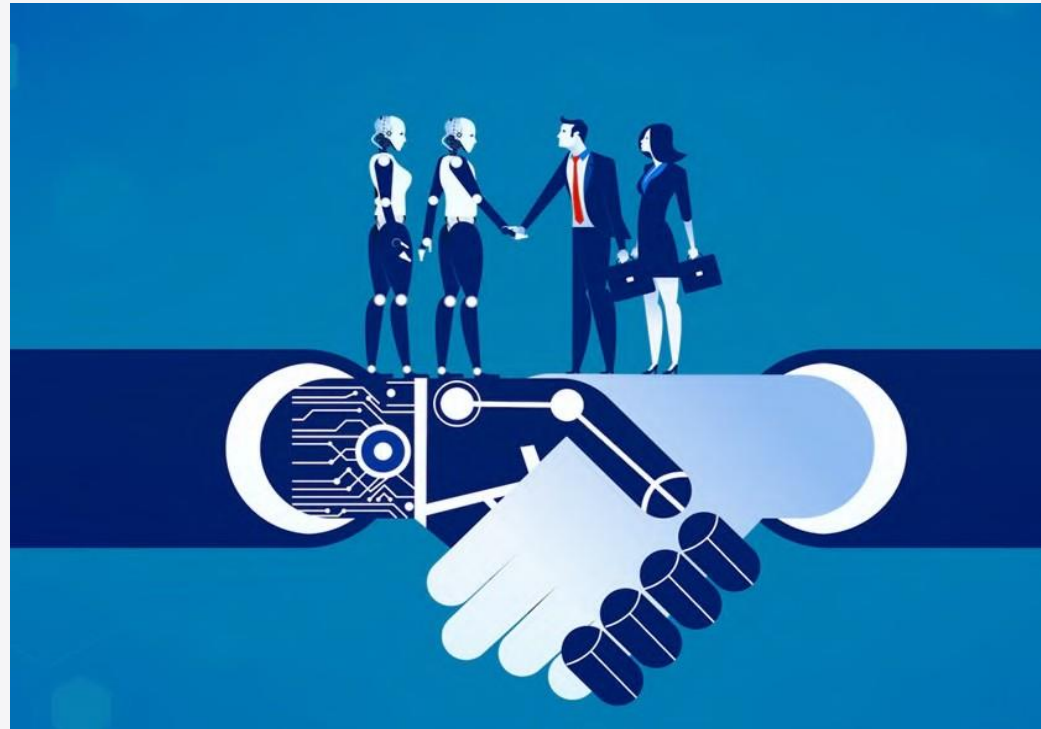


Image Processing

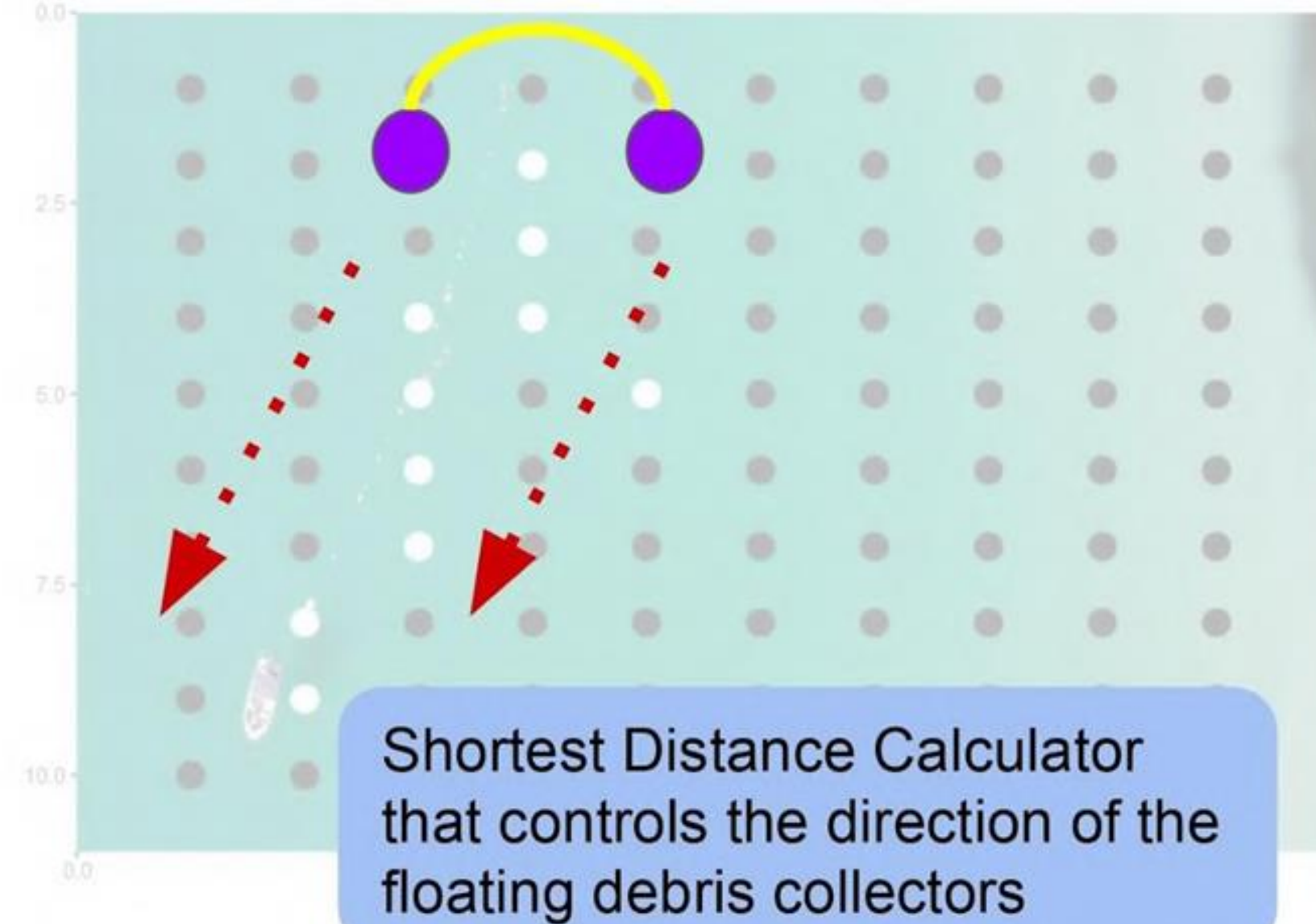
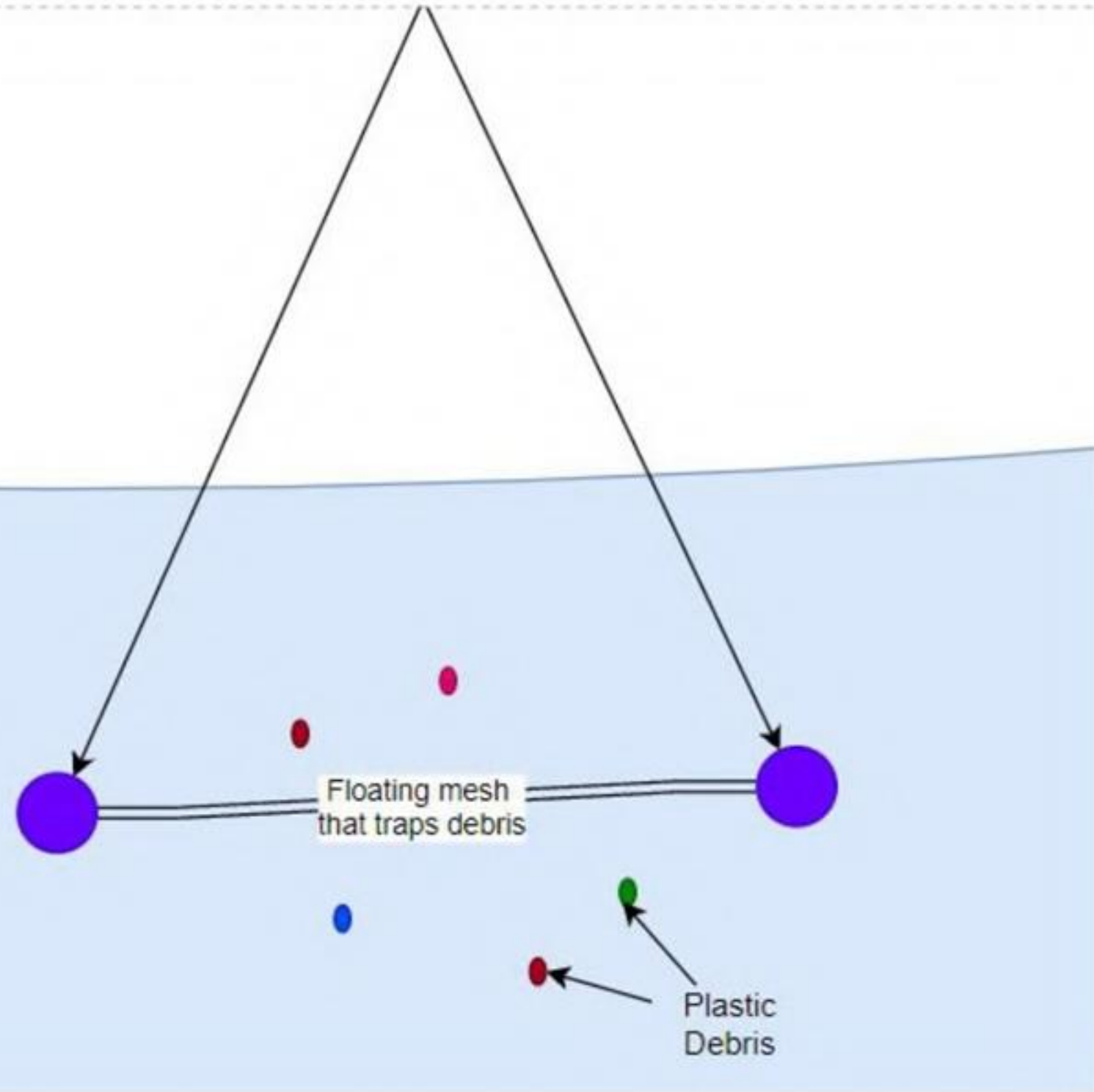
**Cutting-edge machine
learning algorithm**

**Images
taken by
the drone**

**Image
processing
and
machine
learning**

**Positions
of the
marine
debris and
shortest
route**

Drone Generates Aerial
Image that is processed and
location data is sent to the
collectors



Finding Debris using web based application

C:/Users/jsajith/Desktop/EurekaInnovations-SpaceApps/AllPlast - Shiny

http://127.0.0.1:7479 | Open in Browser | Publish

Plastic Marine debris identification & removal using drone Imaging

Upload jpg file to analyze:

Browse... plastic_11.png

Upload complete

Analyze image

Image splitting (rows and columns)

10

Viewpoint height (m)

200

Focal distance equivalent to 24x36 mm (mm)

40

☒ Read information from image metadata

Using default model

Use default model Train new model

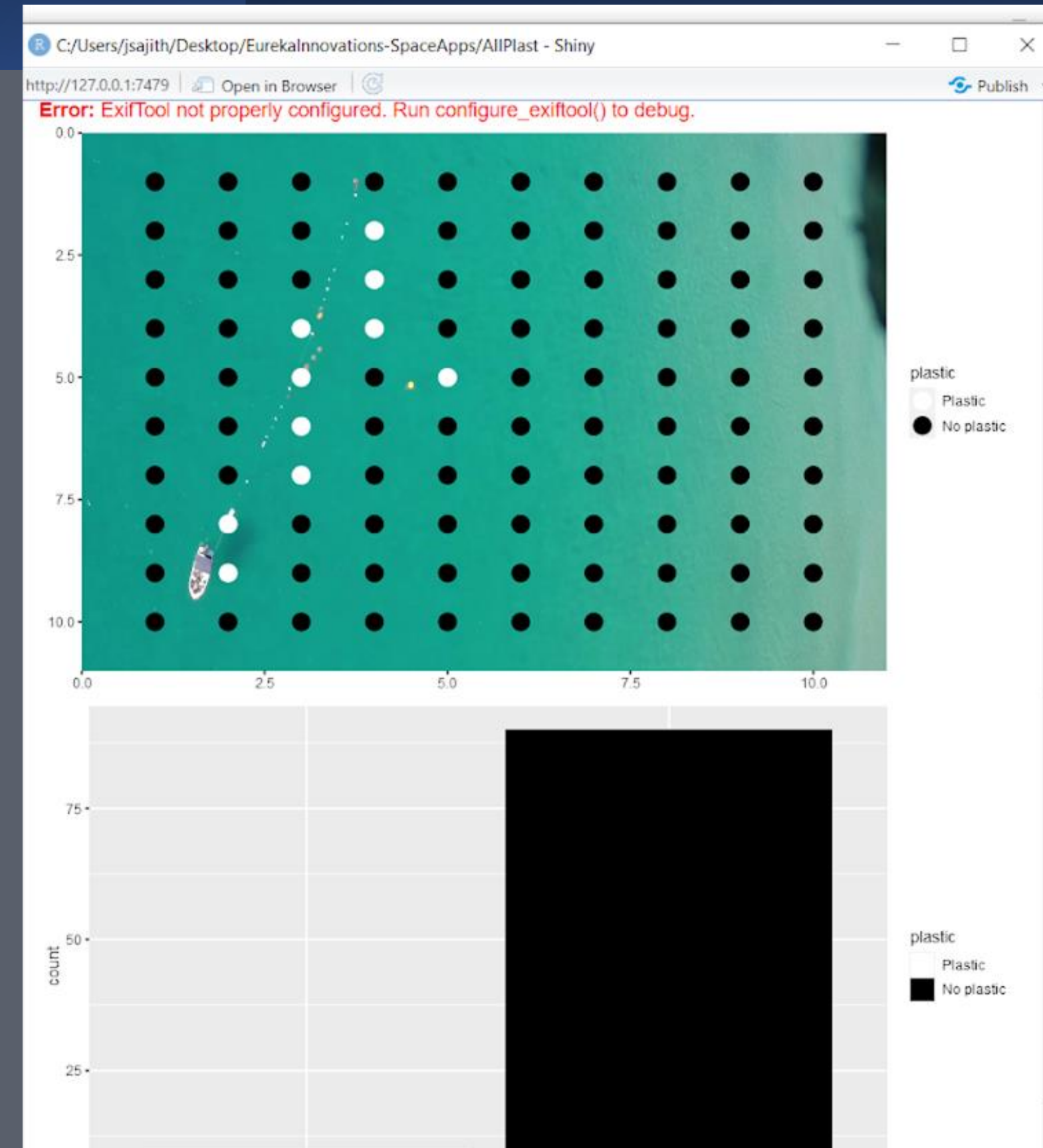
Iterations of new model

200

☐ Test new model accuracy

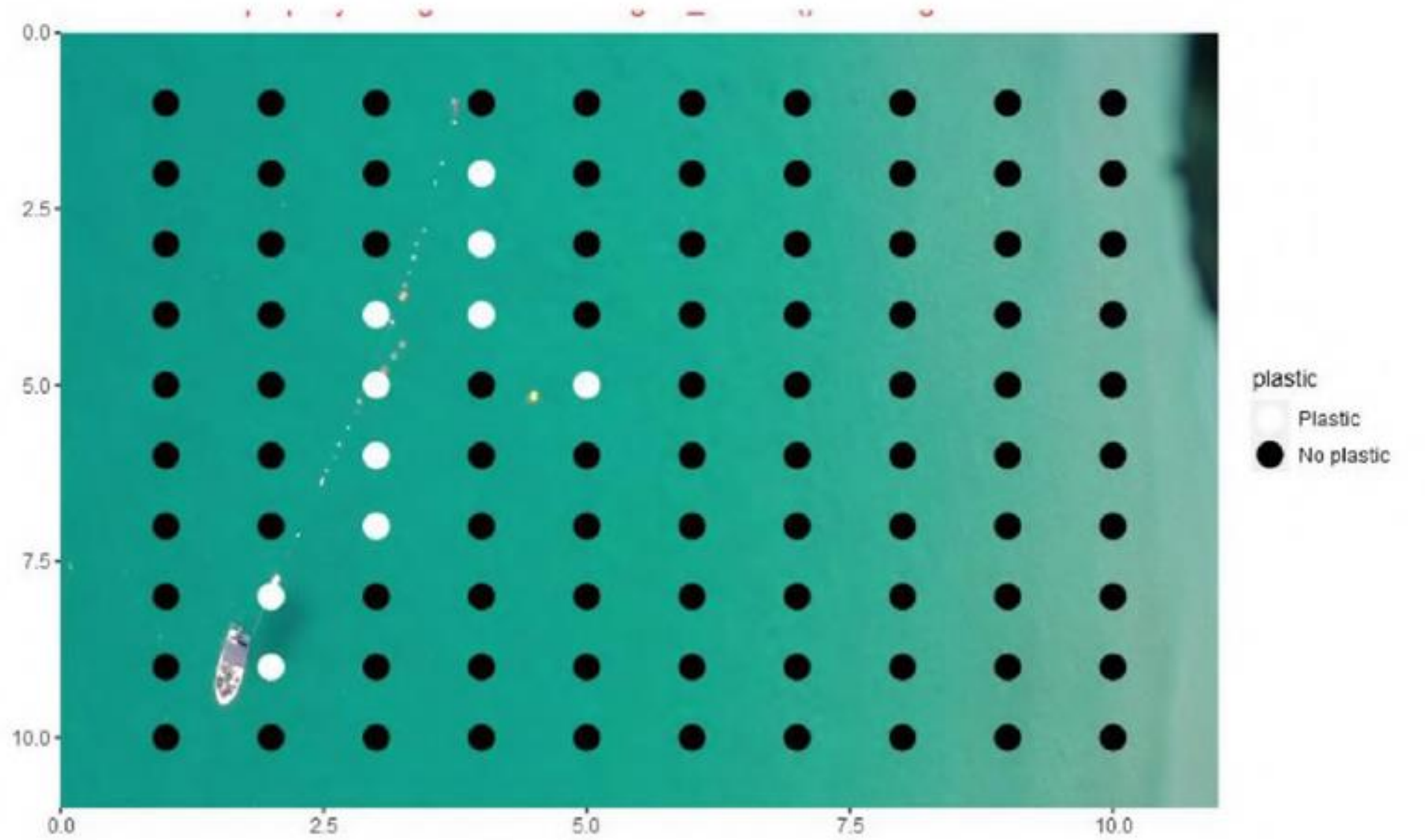
Download current model

Upload model file:





**Regular Drone
image**



**Generated
Image with
predictions**

Dijkstra's algorithm implementation to find the shortest path

colab.research.google.com/drive/1AE7MUvzIDkzcarqlj8oyfE5Ts4u0Hq1C#scrollTo=R3TpteyJ5aah

maze1.ipynb

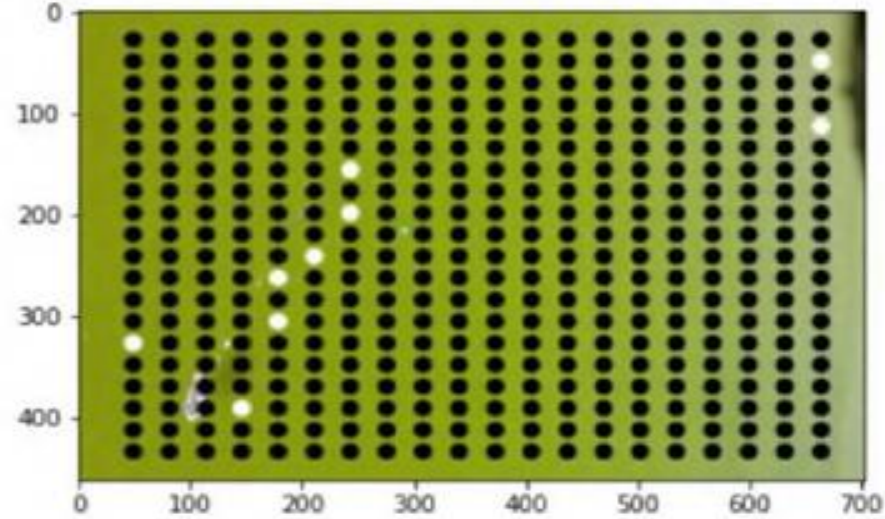
File Edit View Insert Runtime Tools Help All changes saved

Files

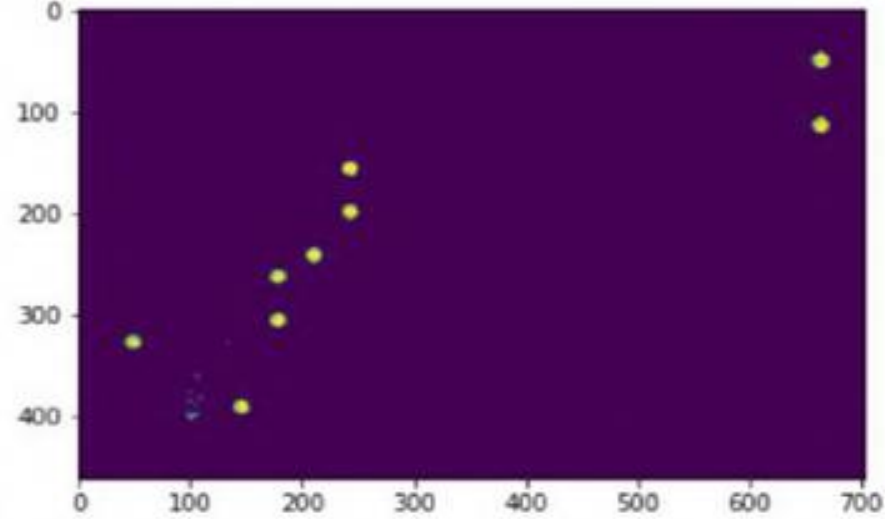
- sample_data
- f99952e8-4028-4bb7-838c-12c67e...

+ Code + Text

[9] plt.show()



[10] plt.imshow(blackAndWhiteImage1)
plt.show()



Disk 64.15 GB available

Type here to search

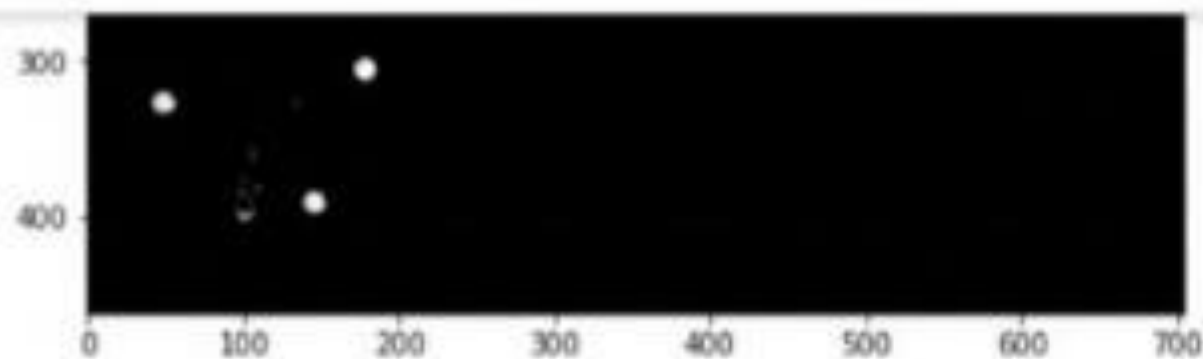
82°F Mostly cloudy 23:18 03/10/2021

Image generated by Drone is preprocessed and masked to identify coordinates of Debris availability

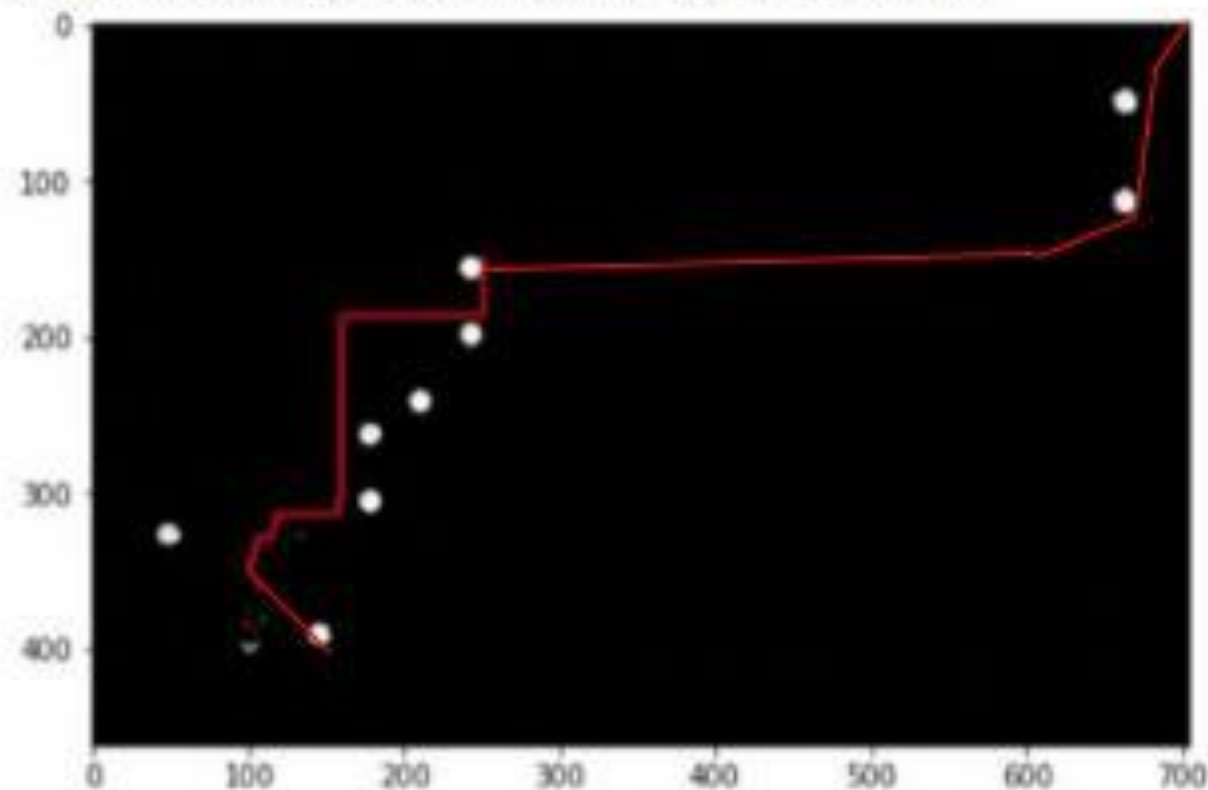
38c-12c67e...

+ Code + Text

✓



```
<matplotlib.image.AxesImage at 0x7fb7634a1210>
```



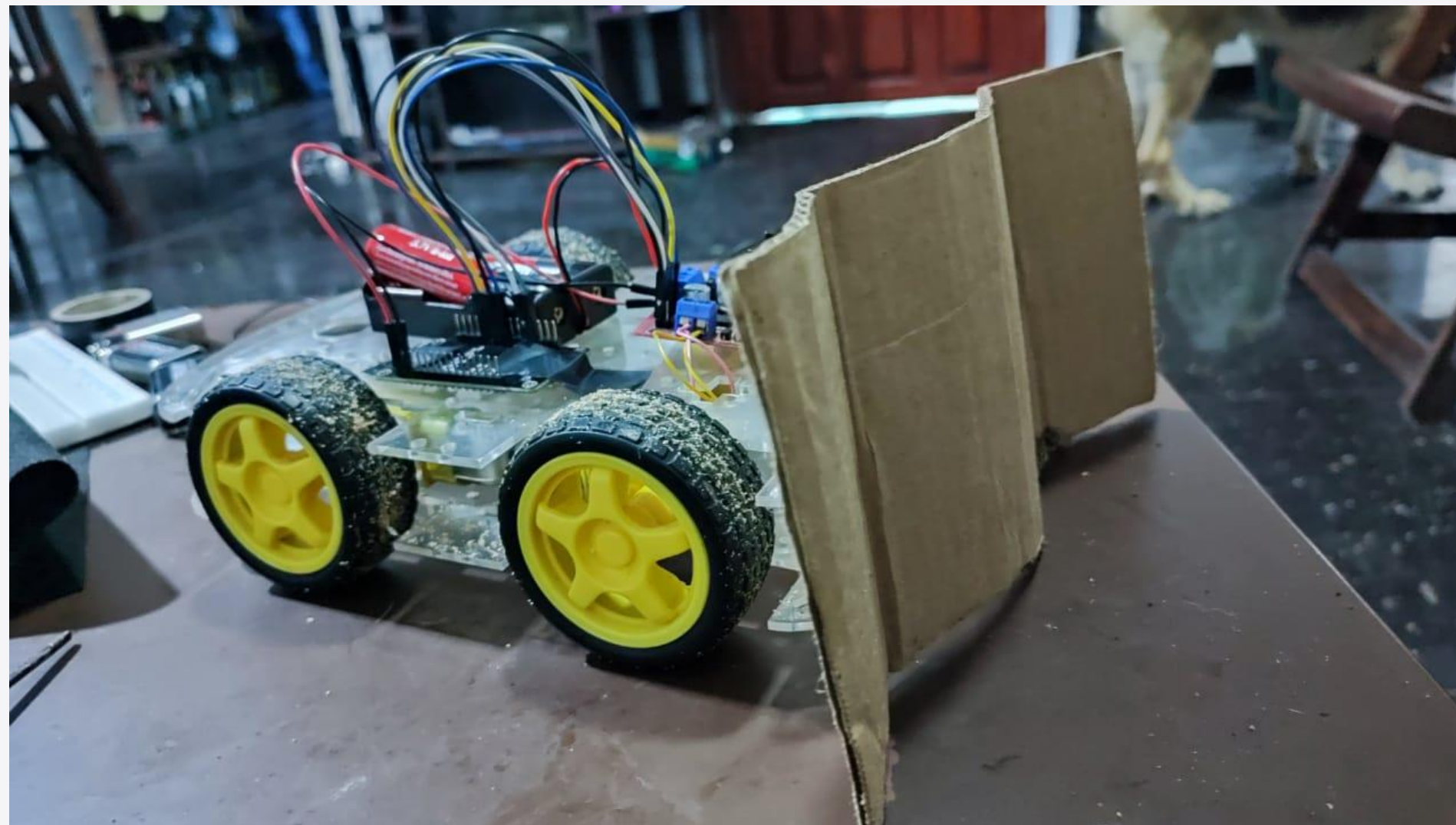
Shortest Distance Calculator Algorithm is used to generate a traveling path with favourable entry and exit points for the twin collectors to collect the debris

Sample Demo of our Idea





For the test hypothesis robotic car made on NodeMcu was used as debris collector system.





Business Model

Table of Contents

01

Audience

03

Feasibility

02

Viability

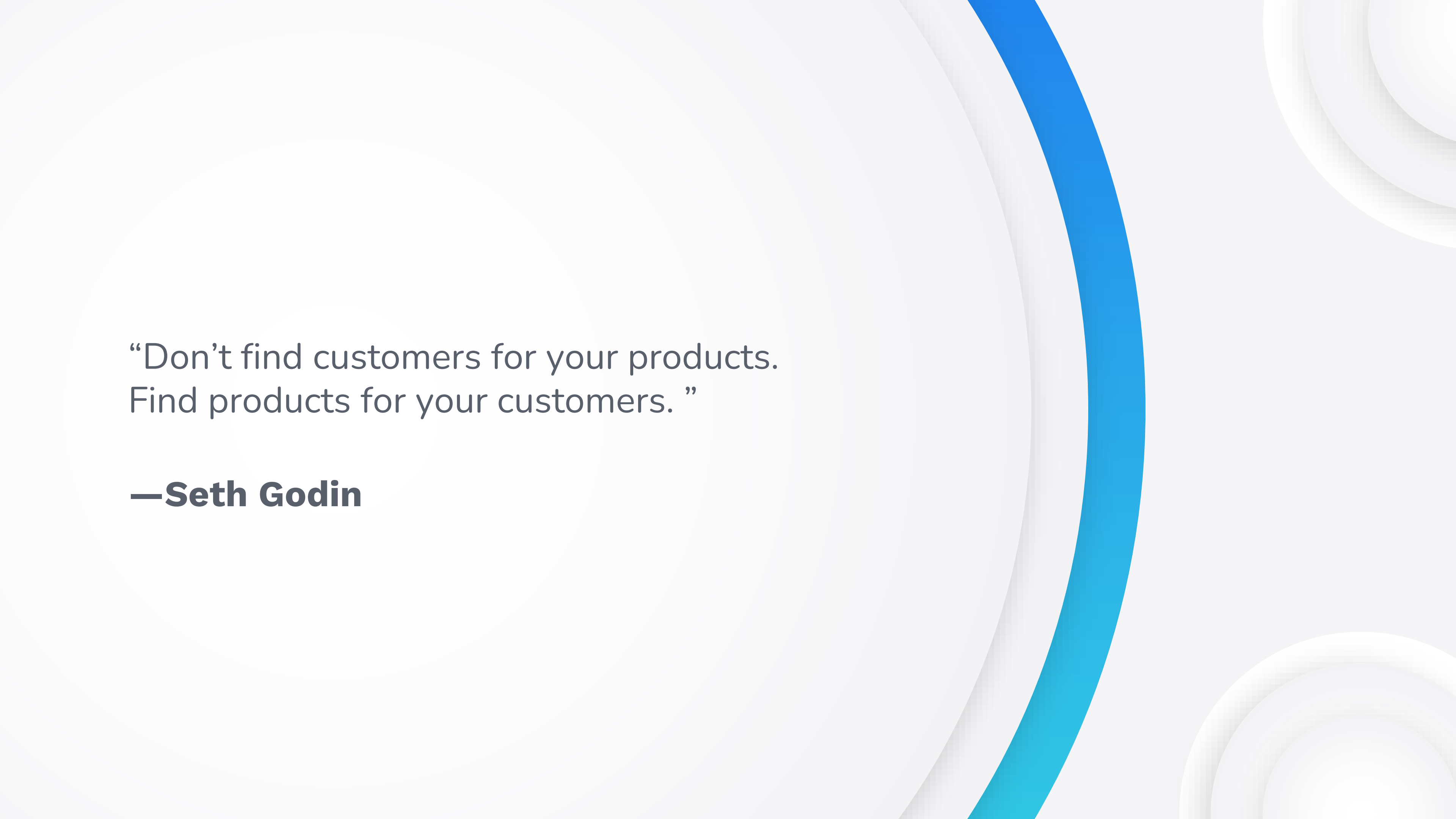
04

Marketing Strategy



01

Audience



“Don’t find customers for your products.
Find products for your customers. ”

—**Seth Godin**

Who are the audience?

Do the entire world population need this product?

- Our product preserves environment.
- Low fuel cost and less human labour
- Environmental balance is preserved.

If a product satisfies all these requirements, who won't use it?





**World Health
Organization**

[World Health Organization](#)

**Promotes health, keep the world safe,
and serve the vulnerable.**



Ocean Conservancy®

[Ocean Conservancy](#)

**Educates and empowers citizens to
take action on behalf of the
ocean**

**THE OCEAN®
CLEANUP**

[The Ocean Cleanup](#)

**Goal: Reaching 90% reduction of floating
ocean plastic by 2040.**

Sea wastages are damaging the water as well as the organisms in it.

- There are more than 190 **Ocean Conservation** organizations all over the world.
- This product will boost their productivity.



Land

- Many non profit , and profit organizations are willing to use a mechanism to preserve the purity of land.

Eg: Natural Resources Defense Council (NRDC)





2

Viability

Viability



Revenue Streams



Cost Structure

Devices, labour cost



3

Feasibility

Feasibility



Key Resources

IOT Devices
Drones



Partnership

We can partner with
many volunteering
organizations



4

Revenue Model

Revenue Model



Value Proportions

Product Cost



Customer Segments

Price range, and premier products



Accessibility

Finding our product in the market



Customer Relationships

Any barriers for new customers?



5

Marketing Sales and Strategy

Marketing Sales and Strategy

Attention

Digital Marketing
National Organizations

Medium of Sales

Online & In Person

How Different

Finding our product in the
market



Q & A

THANK YOU

