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Solve for Tomorrow

Project Title: Aqua Reformer

Team Name: Carboxy HITAM

Team No: 49

Knowledge Partner

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Problem Statement

- Water in Artificial Fish Ponds are stagnant.
- The amount of dissolved oxygen in the water falls due to the respiration of fish.
- Released Carbon dioxide reacts with water and forms Carbonic acid which makes the pond acidic.
- The Excreta released by the fish also makes the pond acidic.
- Farmer uses Lime to neutralize the Water.

Traditional Aqua Culture

Liming of Fish Pond

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Environmental Risk.

- Lime reacts with carbonic acid and forms Calcium Carbonate.
- Calcium Carbonate precipitate at the pond's bottom which depletes the soil fertility.
- It is extremely detrimental to both the soil and the ecosystem.

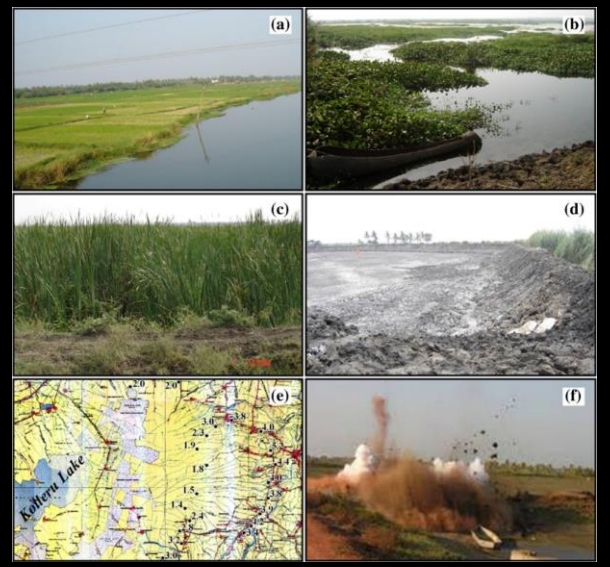
Precipitation of Calcium Carbonate

Barren Land Caused due to excess usage of Lime

Real life Situation

- Lake Kolleru is one of the Largest Freshwater lakes in the world located in Andhra Pradesh, India.
- It is highly degraded because of large-scale aquaculture encroachments.
- In 2006 Government banned the aquaculture practices around a lake with a Radius of 20Kms by Operation Kolleru.

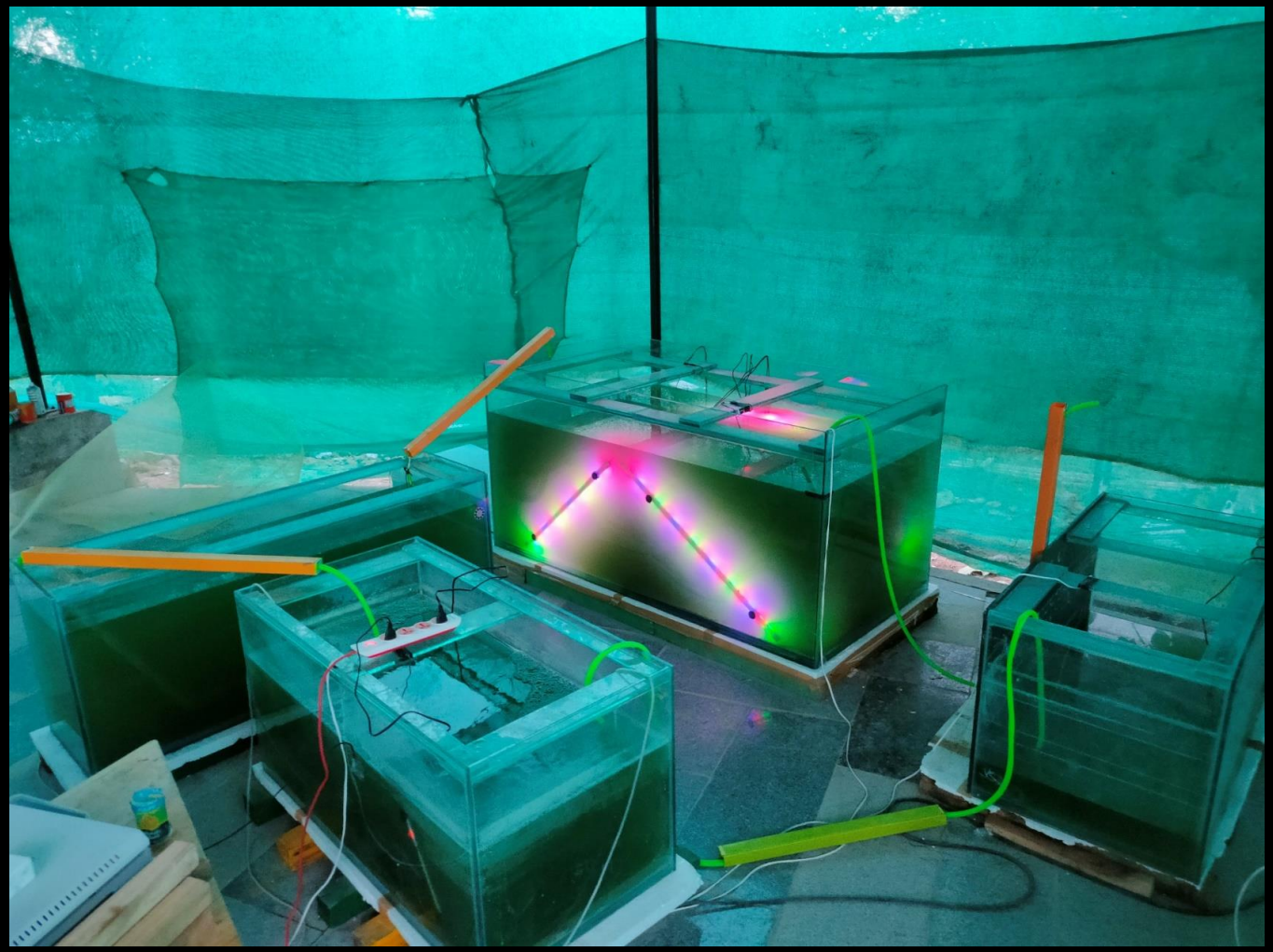
References : Google Earth



Images of Polluted Lake Kolleru

References : Research Gate

Proposed Solution



Images of Polluted Lake Kolleru

- Lime is Replaced by Spirulina algae which is Cultivated in a Photobioreactor.

Key features :

- Artificial Photosynthesis Mechanism
- Converts CO2 into O2.
- Uses Fish Excreta as a Nutrient for the Growth of Micro Plant.
- Biomass can be used as Food Source for the Fish and has many external advantages.

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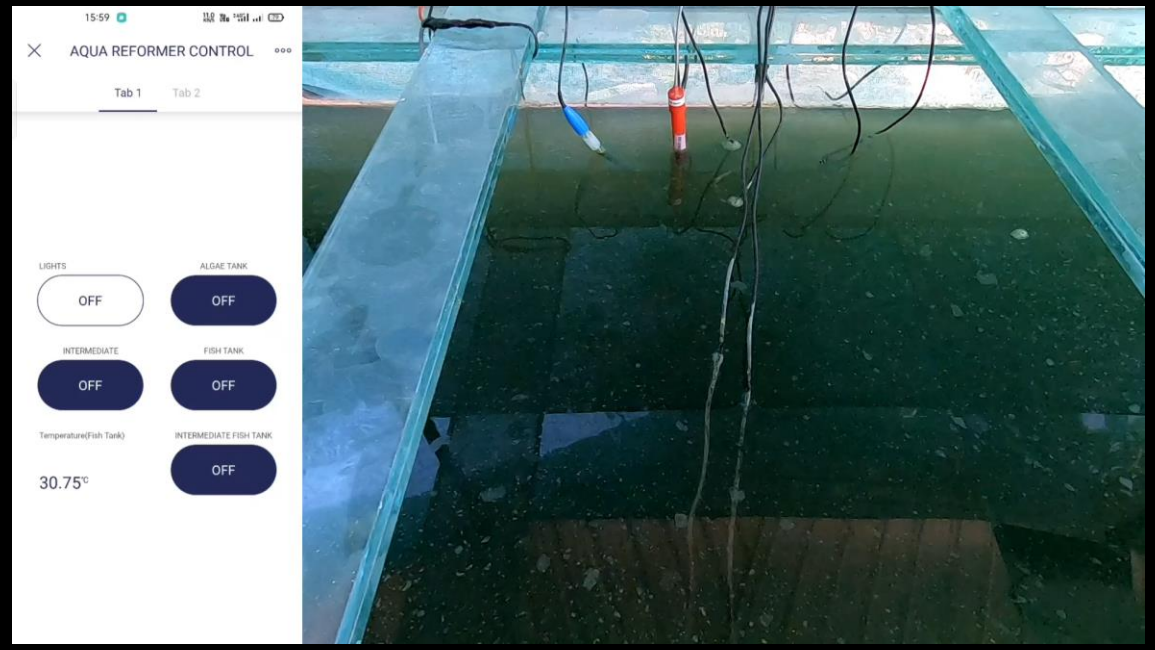
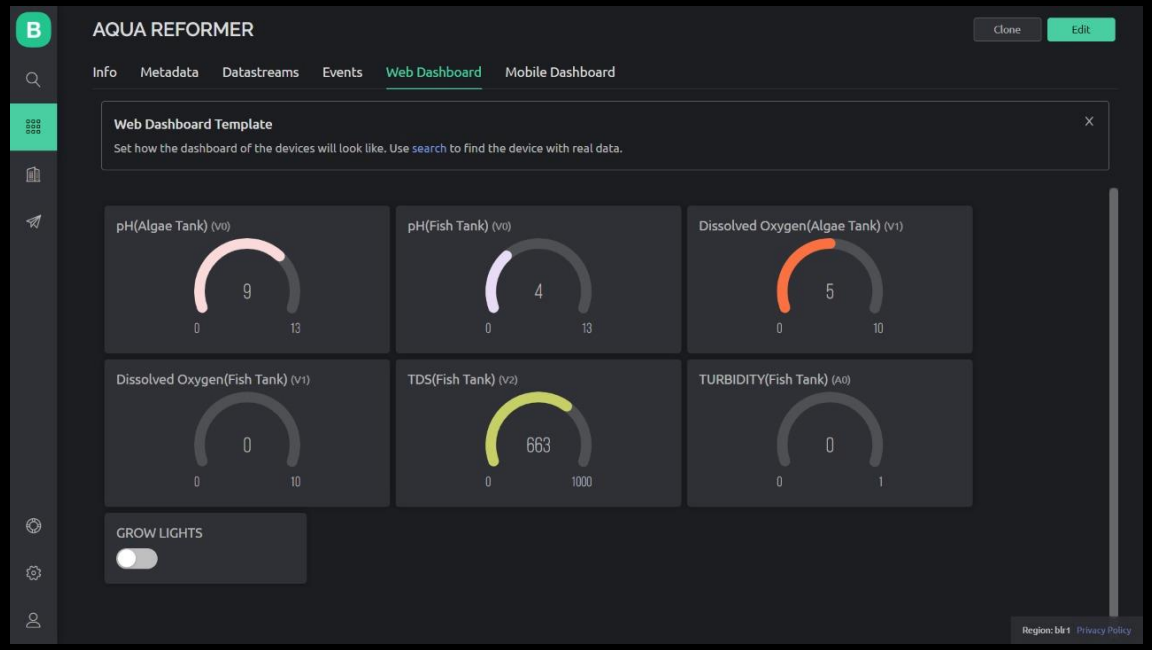
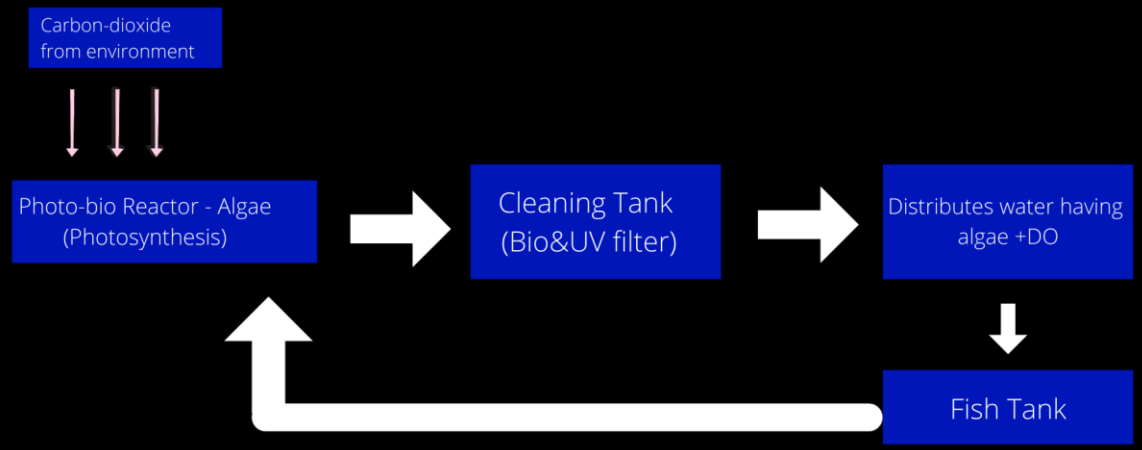
Social Impact of the Idea

- We can save million acres of land which are barren and going to be barren.
- Cost of Lime will be saved and alternatively generates revenue for a farmer through spirulina algae and can also be used as food source for the fish.
- Produces Healthy Fish with increased production.
- Reduced Carbon Footprint.

Product - How it works

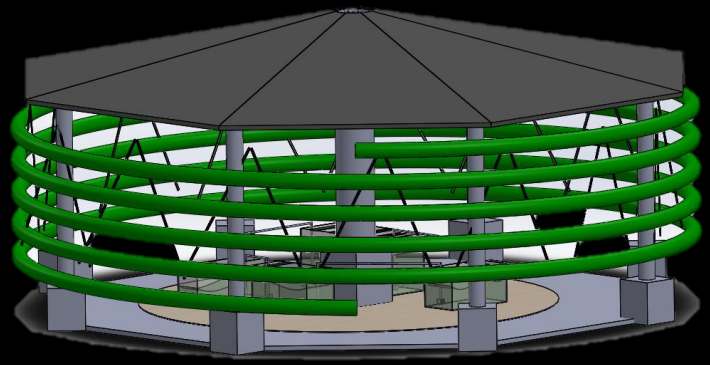






Photobioreactor to reduce Carbon Emissions

- Photobioreactor can be used to reduce carbon emissions as it converts into the Oxygen.
- This Helps to reduce the carbon foot prints near the power plants which are in Gigatonne Scale.



Design and construction of Prototype

Release of Carbon Emissions from Power plant

Business Model

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01 Key Partners

Who are our suppliers and partners?

- Electronics & Semiconductor manufacturing compaines
- Metal Industries
- Agro Industries
- Feed Processing Industries
- Pharma Industries
- Oil Processing Industries

02 Key Activities

What are the key activities our value propositions require?

- Energy Source
- Maintenance

03 Key Resources

To satisfy our customers, what are the key resources we need?

- Design & Technology
- Alternative Revenue Generation

04 Value Proportions

What value do we deliver to our customers?

- Eco-Friendly & Automated
- User Customization
- ML Based Prediction
- Social Awareness
- Sustainablility

05 Customer Relationships

What type of relationship does each segment of customers expect?

- Subscription Plan
- One Point Communication

06 Channels

How do we reach each of our customer segments?

- Telephone and Web Communication
- GOVT Collaborations

07 Customer Segments

For whom are we creating value?

- Aqua-Farmers
- Department of Fisheries
- National Thermal Power Corporation
- City Municipalities

08 Cost Structure

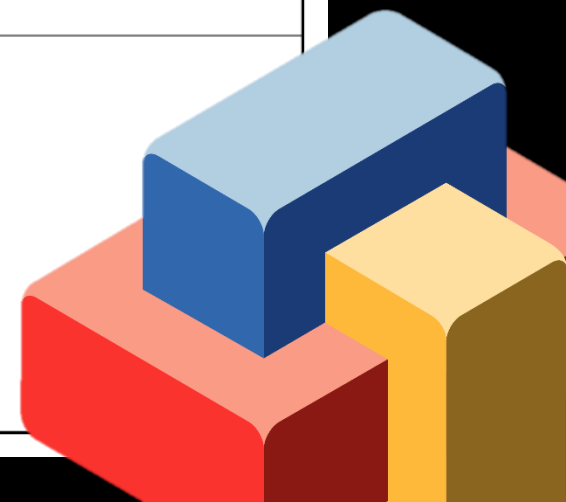
In our business model, what are the most important costs?

- Manufacturing
- Technology and Software Development
- Prototyping
- Data Analysis
- Maintenance & Transport

09 Revenue Streams

What value are our customers willing to pay for?

- Subscription Model
- Maintainence
- Algae Processing



Team Profile

Pavan Kumar

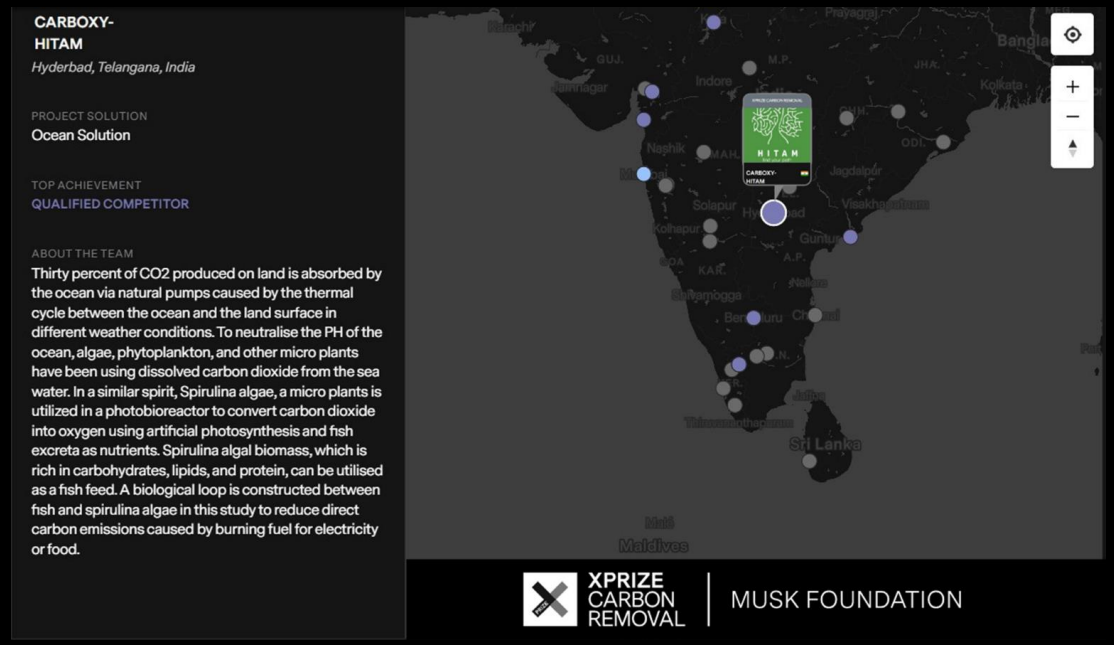
Yuvaraj

Giridhar

- We the Team Carboxy HITAM are the 3rd year undergraduate students from Hyderabad Institute of Technology and Management, Hyderabad, India.
- We were also the Founders of the Startup Kephi Innovations Private Limited, Telangana, India.

Achievements

- Best Expo Award- Robothon 2021
- Qualified Competitor- XPRIZE Carbon Removal, Musk Foundation
- Semifinalists – Cisco Global Problem Solver 2022.
- National Finalists – Code Titans Microsoft Startup Hackathon
- Semi Finalists – Microsoft Imagine Cup 2022.



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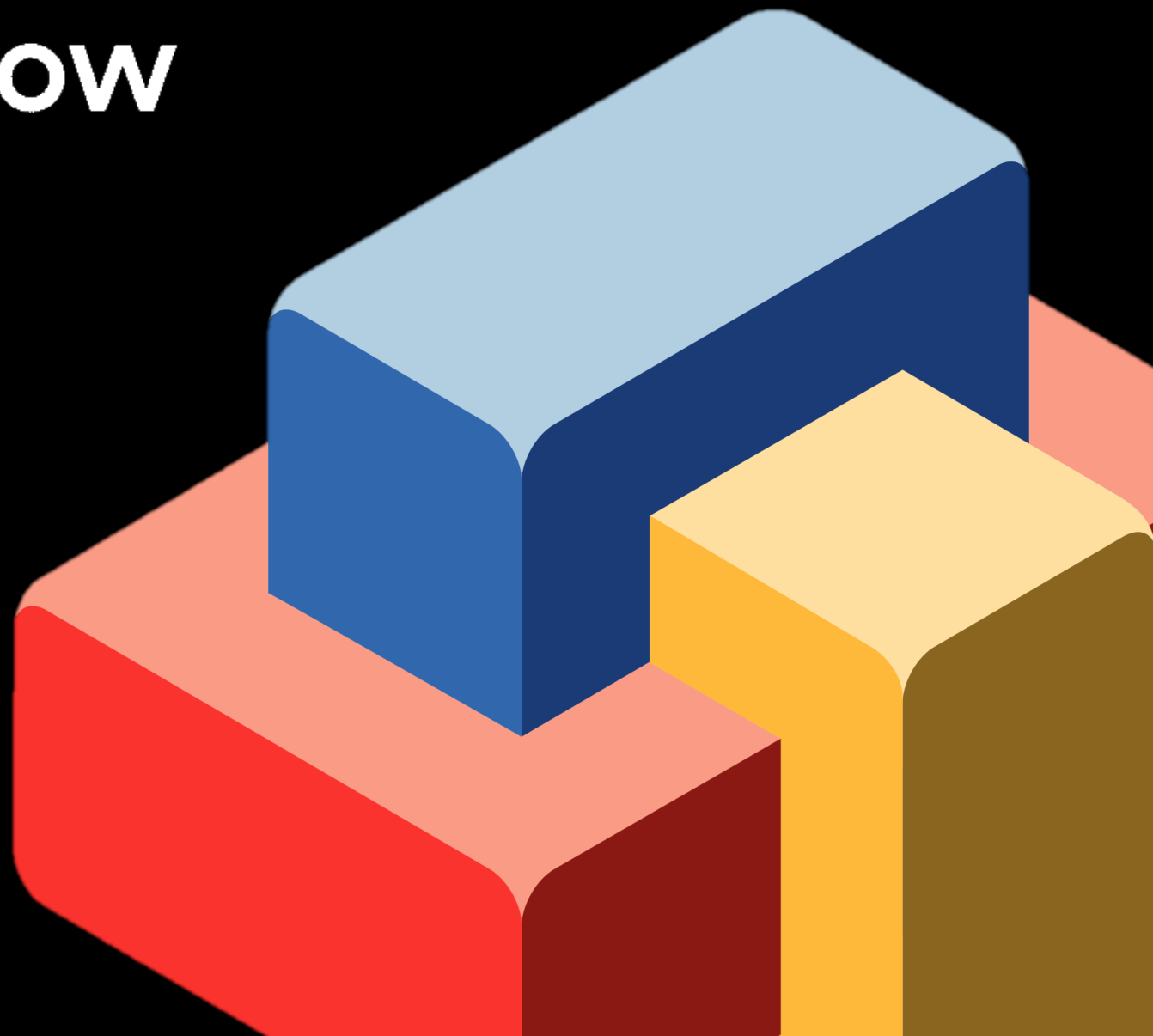
Thank you



Knowledge Partner

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