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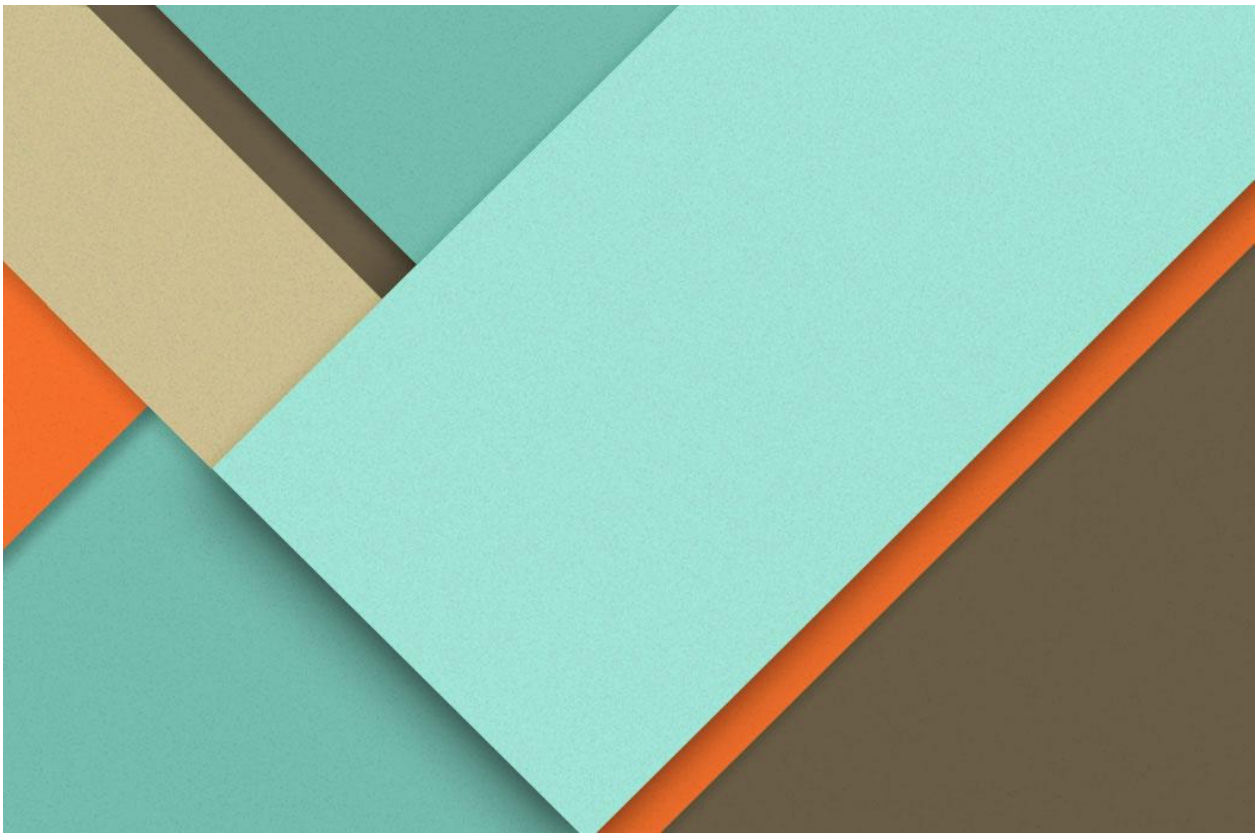

AMPHITRITE : QUEEN OF THE SEA

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INDEX

ABSTRACT

The idea is to help fishermen to catch fish from the shallow sea or from seashore using a Drone, especially during incompatible weather conditions. This makes it more accessible to search for large quantities of fish by venturing the open sea. The fishermen must be taught to control the drone, so that they can handle it with ease. A drone can't locate a place on its own, to catch the fish as fishermen do. A solution for this is, [nowadays most of the fishermen in the foreign countries use a **fishing light attractor**] a fishing aid that uses lights, attached to the structure above water or suspended underwater to attract both fish and members of their food chain to specific areas in order to harvest or fish them. The drone should be attached with a GPS, and a foldable net, which when given instructions, unfolds and submerges into the water and catches the mass fish according to the weight capacity of the drone.

INTRODUCTION

Fishing is a prehistoric practice which dates back at least 40,000 years. Since the 16th century, fishing vessels have been able to cross oceans in pursuit of fish and it has been possible to use larger vessels, and also process them onboard. Fishing has helped us humans to sustain in this world and also taught us about capturing the wild. In addition to providing food, modern fishing is a recreational sport too. Fisheries and aquaculture provide direct and indirect employment to over 500 million people. Fishes are not commonly available on the shores, for this, the fishermen have to venture into the deep ocean. They have to

conquer the harsh waves and tides, in order to help the world enjoy the savoury of the marine food and for the sustainment of their kind.

The world is changing, so are the climatic conditions. Disasters like Hurricanes and low pressure are more frequent these days. But fishermen give their lives bait to help their families from starving. We personally felt that, to save them from starvation, why let those heroes put themselves in danger? Of course we cannot stop eating fish just for the sake of the above mentioned risk.

But isn't Science growing day-by-day, and also we human beings are ingenious. These realizations gave way to this innovative idea. Therefore, Team "***LUMIPAD"*** presents before you "***AMPHITRITE: Queen of the sea***".

THEORY

In many areas of nature conservation, drones can be a game changer. They enable researchers and conservationists to quickly and cheaply create their own high-resolution maps and 3D models that can then be used to analyse information and to answer questions relating to the environment. Drones are also an excellent tool for **tracking,** poaching activities, **fishing** and acquiring imagery that enables researchers to analyse inaccessible areas and count animals.

--- save our seas

OBJECTIVES

AMPHITRITE is a well-planned project for catching fish from the open sea, thereby reducing the risk taken by fishermen. The project also uses a **fishing light attractor**. Hence, she doesn't need to find the fish,

the fish finds her (here, **she** refers to project ***AMPHITRITE***). A GPS will be installed to find an area where more number of fish can be detected. A project on fishing in the open sea is **coming into action** for the first time, therefore ***AMPHITRITE*** is **unique** in the area of **Marine engineering**.

HYPOTHESIS (Question and Answer)

Can a drone flyover the sea, without much turbulence?

According to the project, AMPHITRITE is to venture into the open sea. Wind will be strong, but ***AMPHITRITE*** can go through all of this.

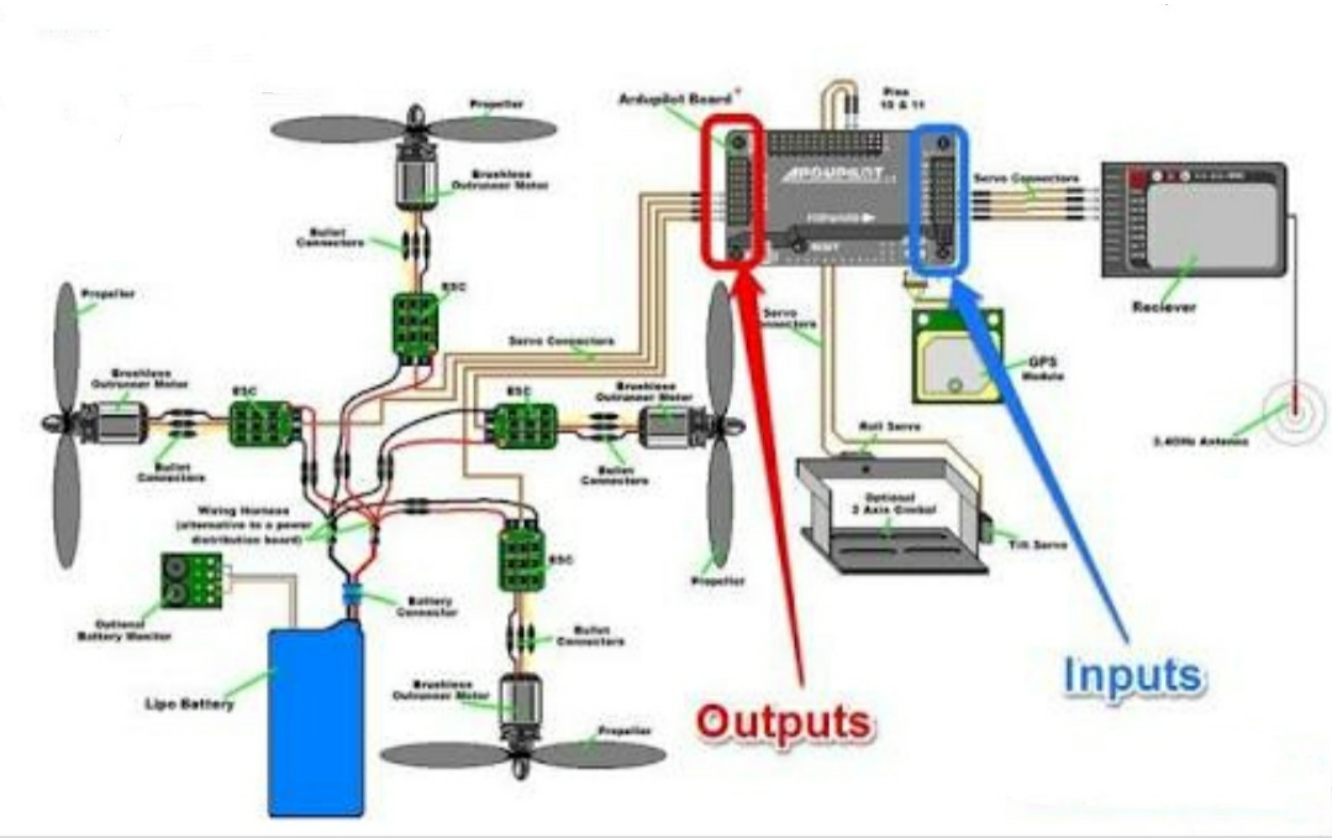
AMPHITRITE is having a well-designed structure. The propellers are arranged in such a way that it can carry more than 400 pounds, **across the sea**.

NEED STATEMENT AND RELEVANCE

AMPHITRITE is a sea fish catcher, attached with a fishing light attractor, **GPS**, **foldable net and refrigeration,** all which will be controlled by ***AMPHITRITE's*** own simple app: **"TRILIUM"**.

METHODOLOGY

A 3D simulation and the simulation of one of the controlling systems will be shown for better understanding of the jury. Methods adopted are flying, attracting, catching, integrating, controlling etc....



DATA ANALYSIS AND INTERPRETATION

With 150 hours of flight with about 450 battery cycles, ***AMPHITRITE's*** **minimum** warranty is 1½ years.

The cost we have in our mind for :

- ❏ Traditional fishermen: ₹25,545
- ❏ Normal fishermen : ₹56,575

but training the suitable fishermen on how to use the **"TRILIUM"** app will be provided free of cost.

INTERVIEW : M.F.Sc,**Dr.Ravishankar CN**, Ph.DA.R.S, FNAAS, FAFST, FSFT, Director of Central Institute of Fisheries Technology.

QUESTIONNAIRE

1. What are the most common difficulties faced by fishermen?
2. Is there any technology, at present, that can help fishermen in fishing?
3. What about the project AMPHITRITE? Will it be a good asset for fisheries technology?
4. According to your perspective, can this be working?
5. Will the Government support and fund such a project?
6. What are the advantages that you find in project ***AMPHITRITE*** ?
7. Are there any limits or rules for the project ***AMPHITRITE*** ?

Summary of the Interview

"The idea feels spectacular to me, and it can really be a very great relief for the traditional fishermen, who don't have the right aid to fish, and just believe in luck. The integration, catching, sensing, refrigeration, are all very creative.

About the rules, you need to get permission from coastal guards/navy to fly the drone, because member nations are trying to sneak some drones into the country.

As you are not after the profits, you will need great support in funding, but support from the CIFT will be there for sure. Also if the project is a great success the central government can also help you. The other methodologies are all very innovative. Hope this project will be a very good asset for the world of fishermen as well as the world community."

RESULT

AMPHITRITE catches fish, using the foldable net and preserving it inside the mini refrigerator. According to the destination inserted in the GPS, it brings correctly back to the seashore. As a result, we will obtain fresh, good quality fish at the earliest.

CONCLUSION

The following are the Advantages and Disadvantages of the project: ***AMPHITRITE***.

Advantages:

- ❏ During cyclonic storms and rough weather conditions, which are frequently occurring, the life of fishermen is at risk. Hence, the primary objective of this project is to **ensure safety** of fishermen at sea.
- ❏ Fishing nowadays is not remunerative, as fishermen need to invest more on fuel and the probability of getting a good fish catch is also less. This is resulting in low income affecting their livelihoods.
- ❏ The proposed project will ensure **better catches** and **increase their income**.
- ❏ **No investment** on fuel, thereby **minimizing** their **financial burden**.
- ❏ The technology is **user friendly** and can be even operated by fisherwomen, which will **help in empowering women**.

- ❏ The mobile app: **TRILIUM** which will be integrated with the system will enable easy use of ***AMPHITRITE*** by ordinary fishermen without special skills.
- ❏ As the technology involves **quick harvest** and **proper preservation** of catch by providing refrigeration facility, fish quality will be maintained.
- ❏ Good quality fish will fetch a better price which will give additional income to poor fishermen.
- ❏ This technology can be supported by both Central and State governments as it has many advantages.
- ❏ Educated people who are able to teach them the TRILLIUM app will get employed and we can reduce underemployment to some extent among these folks.

Advantages (based on conservation of ecosystem)

- ☐ Fishing boats that drag nets along the seafloor to catch fish can indiscriminately harm marine life and destroy habitat.
- ☐ The oil spill from fishing boats causes Eutrophication, which reduces the O2 level in the sea, thereby killing marine life.
- ☐ Waste water emptied from Commercial fishing boats, contains detergents and disinfectants which will pose a risk to Marine life and Human health.
- ☐ Sound travels faster in Water than through air. Marine life is extremely sensitive to noise pollution and the fishing boats disrupts the Marine life by emitting the same.

Thus, AMPHITRITE also helps in Marine Environmental management.

Disadvantages :

- ❏ A non-profitable project (“We aren’t going after the profit, we want to look after the welfare of the people.”)

- ❏ As the system depends on sensors, electronic modules, solar panels, there are possibilities that these may get affected due to saline environment. So, needs regular maintenance, otherwise the units may have limited lifespan.
- ❏ Approval for operation along the coast and in open seas may be required from the Navy and Coast Guard, due to security reasons, which may delay the implementation.
- ❏ We will be dependent on it, but when technology fails, we are helpless (in one way or the other).

People who are capable of handling these systems will be provided with complete knowledge of the controlling system of AMPHITRITE (free of cost training would be given to the selected people). We strongly believe that ***AMPHITRITE*** can change the lives of Fishermen in a very positive manner.

APPLICATION

AMPHITRITE can venture into the open sea, using GPS, to find an area where plenty of fishes are found. Using the fishing light attractor which will be attached to the bottom of the drone, attracts fish, which makes it easy for AMPHITRITE to catch them. A foldable net will be used to catch the fishes. An internal mini refrigerator will be set up (from where the net is to be released) for getting fresh fish. The refrigerator will be powered by solar panels. The drone will have a maximum capacity of 226Kg. It will also be added with floating foam tubes on the legs of the drone, incase of any technical issues or due to the accidents occurring

during roughness of the sea. An app is made to help fishermen for better understanding and to use it with ease.

FUTURE PLAN

Project ***AMPHITRITE*** is basically marine engineering. It can be applied in the field of limnology, oceanography, meteorology, GPS technology and environmental management. It can be used by the fishermen for easy fishing without venturing into the sea. When the project is extensively used in India, then we would bring it to the whole world by our team: **LUMIPAD**.

ACKNOWLEDGEMENTS

I am very much grateful to the **God Almighty**, for without his grace and blessings, nothing would have been possible.

Deepest gratitude for the help and support extended by the following people:

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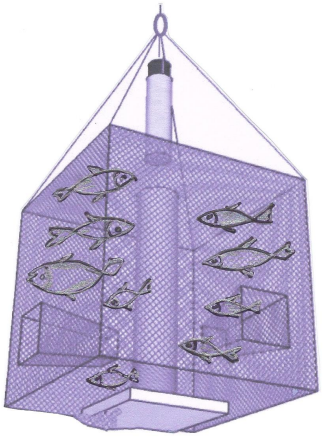
- ❏ To my **IT teacher**, who has always been positive vibe and also provided all the help she could.

Last but not the least, my deepest gratitude to **GYAAN GALAXY** for giving me an opportunity to fulfill my dream.

IMPORTANT DEVICES USED



Foldable Net

This Foldable net is designed in such a way that the fishes can enter through the vents, but are unable to get outside.

FISHING LIGHT ATTRACTOR

A fishing light attractor is a fishing aid which uses lights attached to structures above water or suspended underwater to attract both fish and members of their food chain to specific areas in order to harvest them.

REFRIGERATOR POWERED BY SOLAR PANELS

The refrigerator will be fitted outside the drone. The Foldable Net is to fall from inside the refrigerator. Refrigerator is to give a slight cooling effect so that the fish will not get spoiled even for a minute.

Floating Foam Tubes

The foam tubes are placed in the farthest end of the drone, thereby stabilizing its Centre of Gravity and keeps the drone afloat, incase of any accidents caused by the turbulence of the sea or strong winds.
We can retrieve the crashed drone using another drone.

MODEL OF THE OUTER BODY OF AMPHITRITE

TRILIUM APP (Model)

The app is made in order to make the controls of AMPHITRITE easy for the fishermen. The Controls of the drone will be made very simple, so that they won't have any confusion.

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Links and websites

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THANKING YOU AND EXPECTING A FAVOURABLE REPLY.