

DEVELOPMENT OF A RENEWABLE ENERGY GENERATOR FOR USE IN MARINA

Introduction

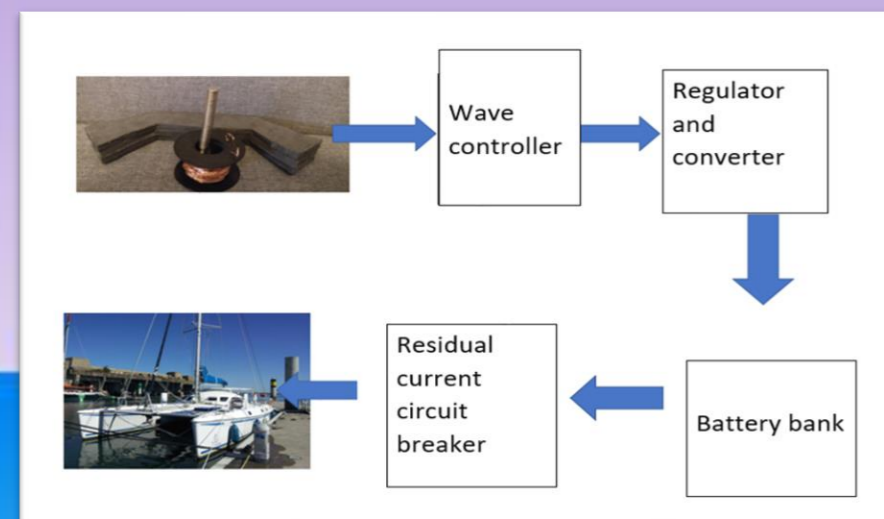
Renewable energy needs to be a big part of the future as non renewable sources are running out at an increased rate. This project develops a new renewable energy generator based on exciting technology to generate energy in a low energy environment being a marina.

Aims

To design and build a fully renewable energy generation device for use in marinas. It needs to be able to generate significant enough energy to charge vessels moored inside. To create a scale prototype using the engineered design to test scaled capability.

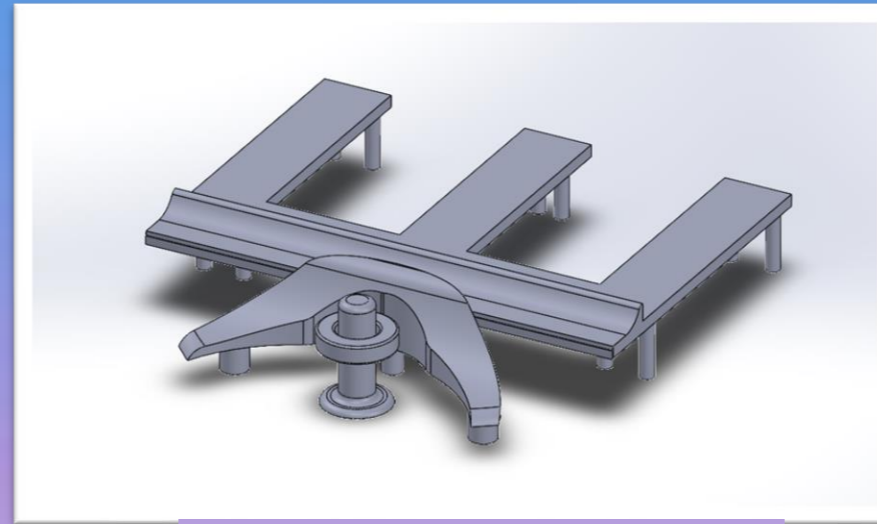
Objectives

- >design a renewable energy device
- >create design specifications
- >Research the best design and model the solution in Solidworks
- >Create a working Prototype and test it
- >Research and record the theoretical energy output of the device along with the made prototypes energy output

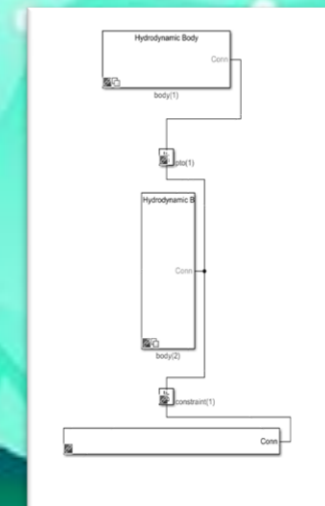
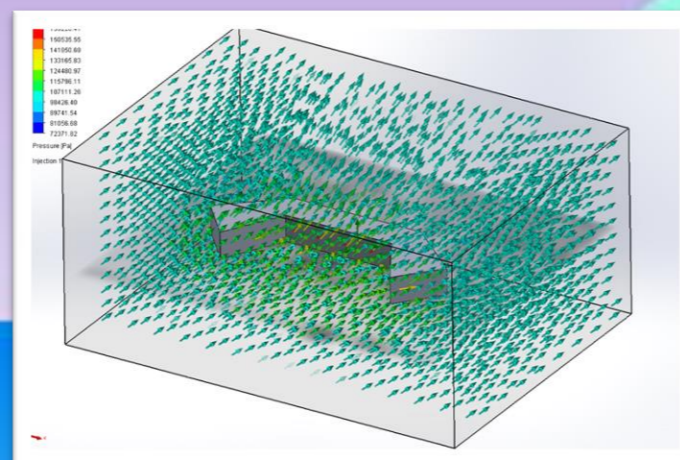


Design

The final design used parts from found existing technology being the ability to concentrate wave power with the wave dragon reflector arms and the low activity energy generation of a electromagnetic point absorber. It will then be fitted to the pontoon facing outwards towards the sea.



Solidworks flow simulation and Matlab WAVE-SIM helped to find data about the final design.



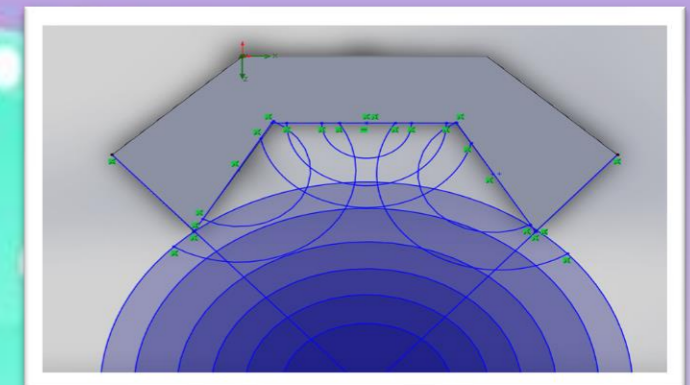
Prototyping

A scale 1:30 model was created to test energy output and to also see how much extra deflection is caused with the reflector wings.



Conclusion

The project goes to show that the opportunity to develop a renewable device for the marina is there and will have to be something properly developed for the future to meet the clean energy goals of the future.



Recommendation

- >Prototype needs further development
- >More software testing to find more efficient designs
- > Mechanics and physics further development to improve energy generation