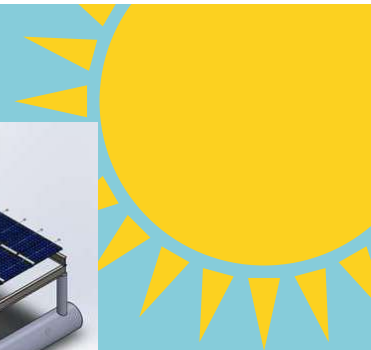


# Floating Photovoltaic for Lagoon use

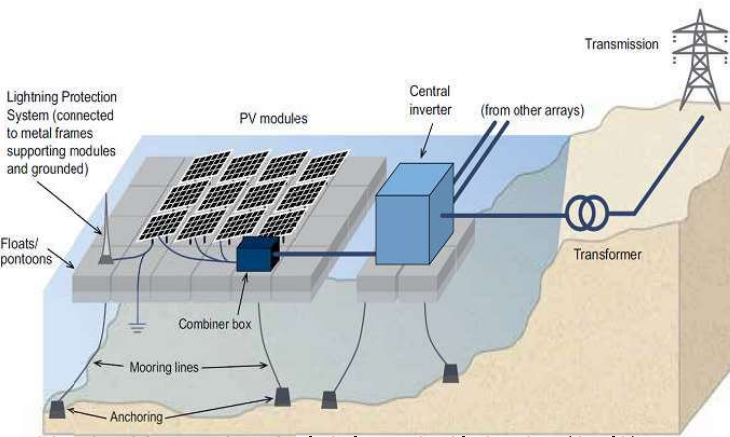
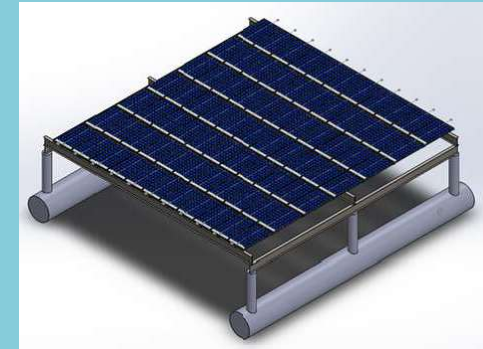


## INTRODUCTION

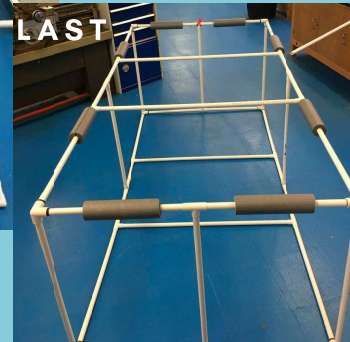
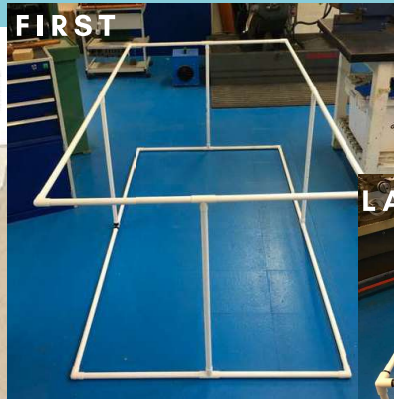
This project explore the possible integration of semi-submersible design in floating PV systems. The goal here is to enhance the electrical generation efficiency and therefore propose an attractive power generation solution for islands nations.

## PROTOTYPING

The following picture is the first and final prototype produce. The goal here was to have a better understanding of the motion response of SEMI-SUB design in a wave environment.



SOURCE: SOLAR RESEARCH INSTITUTE OF SINGAPORE (SERIS)



## CONCLUSION

After uploading the previously built CAD model (with certain modification) into MAXSURF (analysis software). An analysis of the pitch motion response, was conducted. It turned out that the specific model and dimensions reacted with more amplitude to smaller wave frequencies as a simple box shape barge. The upper wave frequency produced the same motion response between the two different model.

## AIM

The integration of a semi-submersible design has for aim to minimize the pitch motion response of the platform. This movement reduction will therefore allow the system to capture more sun energy as "a steady tilt angle = better production efficiency".

## DESIGN

A mix of naval architecture theorems (stability, buoyancy, etc) and mechanical engineer principles (stress, bending moment, etc) helped produce a unique design. The design specifications were then introduce into a CAD software to enable the visualisation.

## DISCUSSION

The accuracy of the result could be ameliorated by proof testing the results in a real environment such as a wave pool using a test model.

