UN Forum on Science, Technology & Innovation

15 – 16 May 2017

Republic of Mauritius

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Mauritius Research Council

Overview

- A small Island in a Big Ocean
- Ocean Economic Drivers

  Aquaculture

  Seaweed Industry

  Marine Renewable Energy
- Need for data capturing for informed decision making: Role of Science & technology & Innovation
- Recommendations

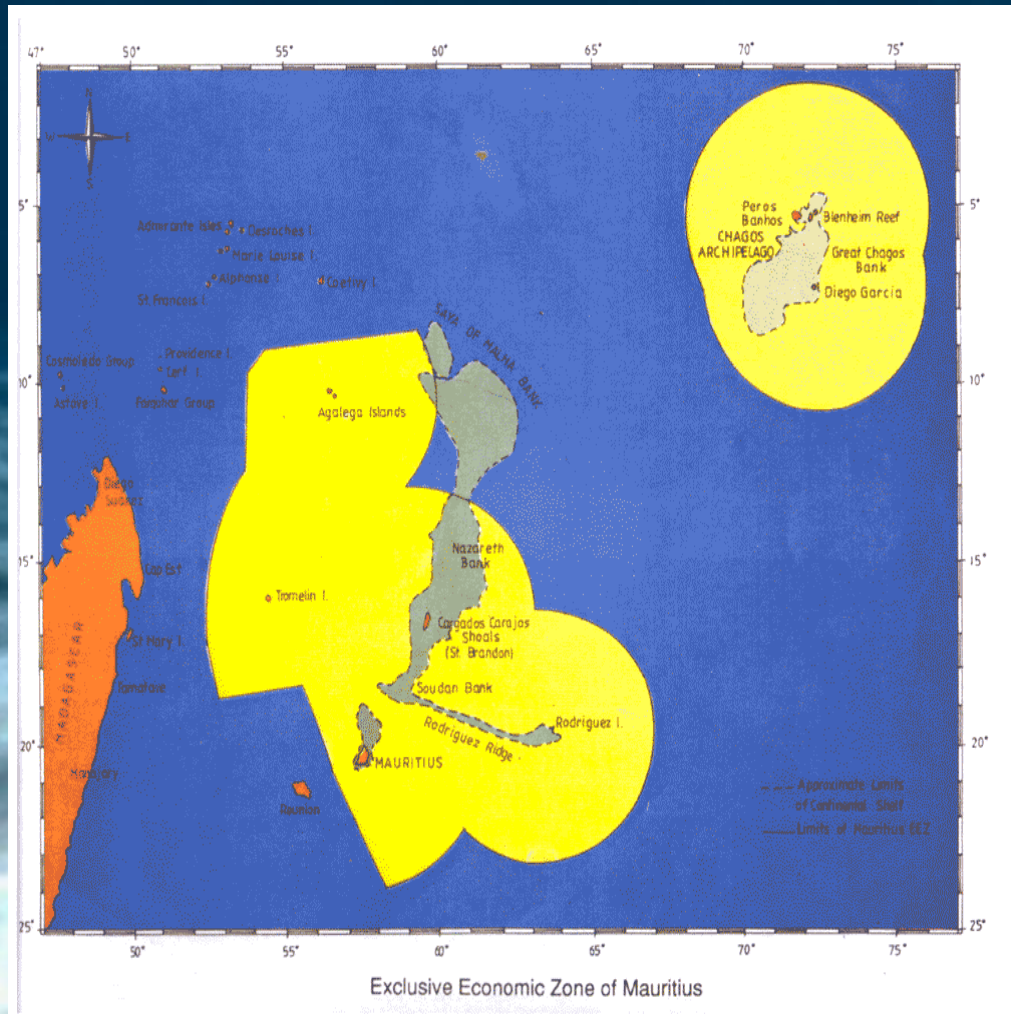
Source: Annual report: COI

An Ocean state

- EEZ: 2.3 million km^2

1100 x land space of Mauritius

Mauritius is a big OCEAN STATE



Exclusive Economic Zone of Mauritius

Local Context

- Land Area: 2040 Km^2
- Population: 1.3 million
- EEZ: 2.3 million km^2 – Ocean State
- Population Literacy rate: ~90%
- 55% Internet penetration
- 122% Mobile phone penetration
- Not much land natural resources
- Main Assets
  - *People - Knowledge Based Economy*
  - *Ocean – Ocean Economy*
- To face SIDs vulnerability
  - *Environmental Concerns-Climate Change*
  - *Global Economic Shocks*
- Strategic Location: a bridge between Africa/Asia/Australia

Transformation of the Economic Landscape

US$ 20,000 by 2025

INNOVATION DRIVEN

USD 12,000

SERVICES

USD 2,500

INDUSTRIAL

USD 1,000

MONOCROP

USD 200*











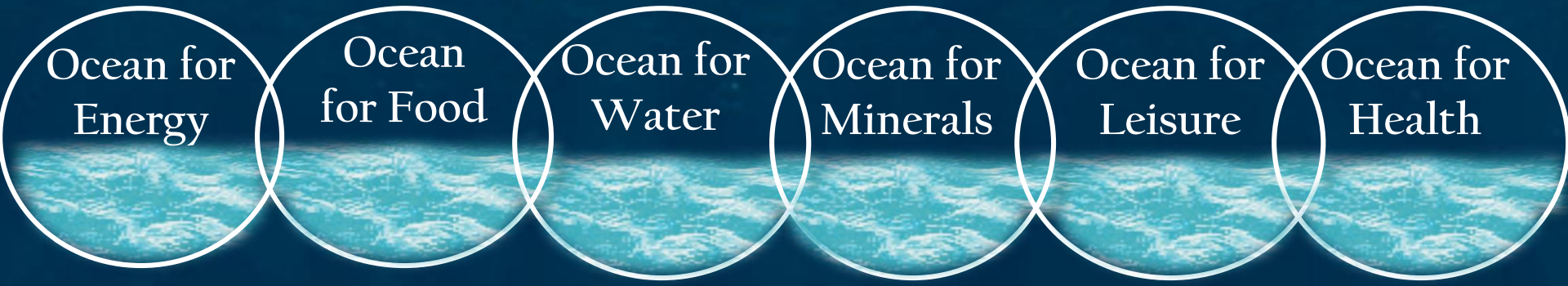






Source: Ministry of Tertiary Education, Science, Research and Technology

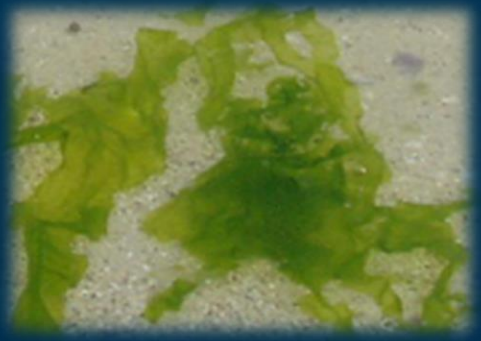
The Ocean State



SUSTAINABILITY

Aquaculture Farm in Mauritius

Local Seaweeds of commercial potential



Ulva lactuca

Padina spp.

Sargassum binderi

Sargassum aquifolium

Gracilaria salicornia

Hypnea cornuta

Seaweed Lagoon Farming Training



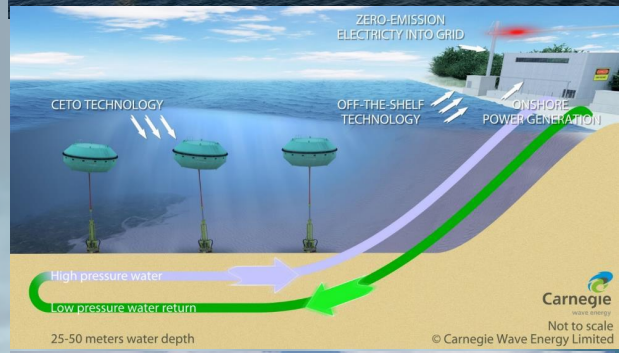
Capacity building workshop (Seaweed Value addition, pickles, jams, etc)


Seaweed Capacity building workshop in Mauritius

Ocean Energy Resources

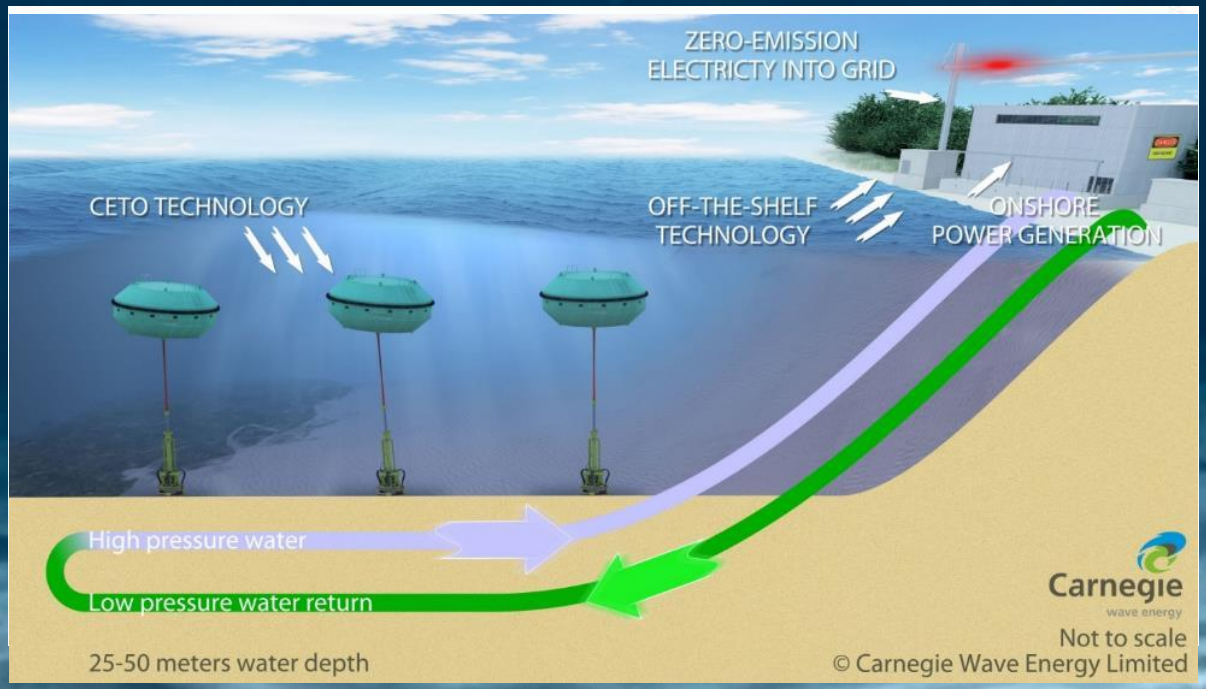
- Offshore Wind Energy
- Ocean Wave Energy
- Ocean Current Energy

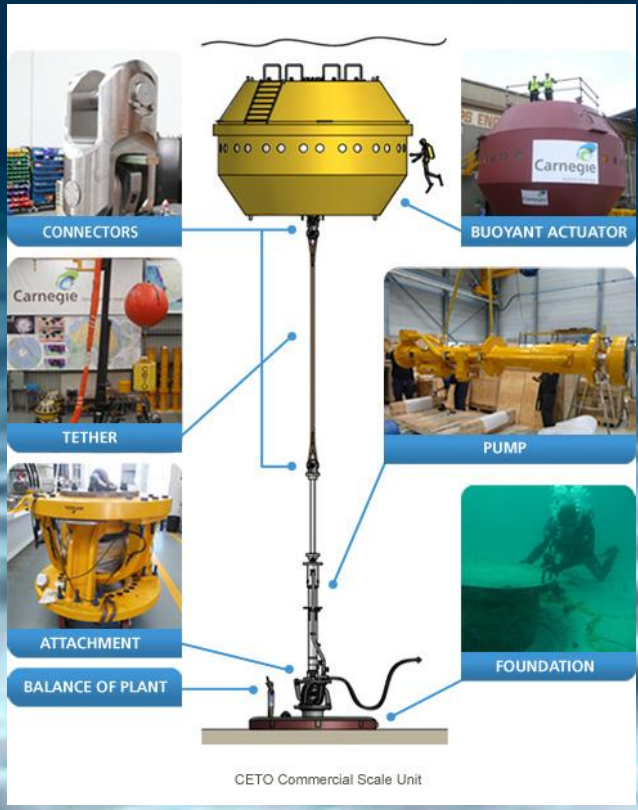
Salinity Gradient Power

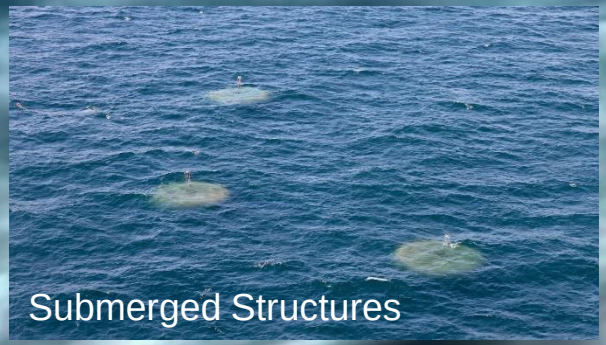


CETO Technology of Carnegie Wave Energy Ltd

CETO Technology

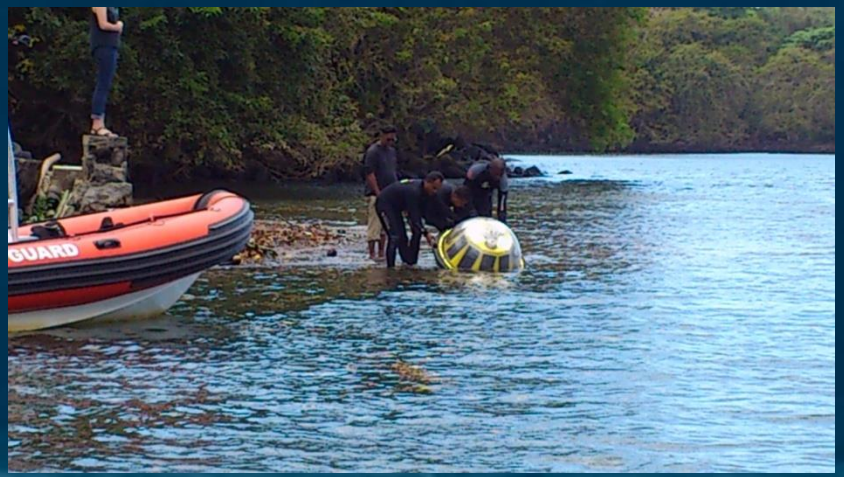




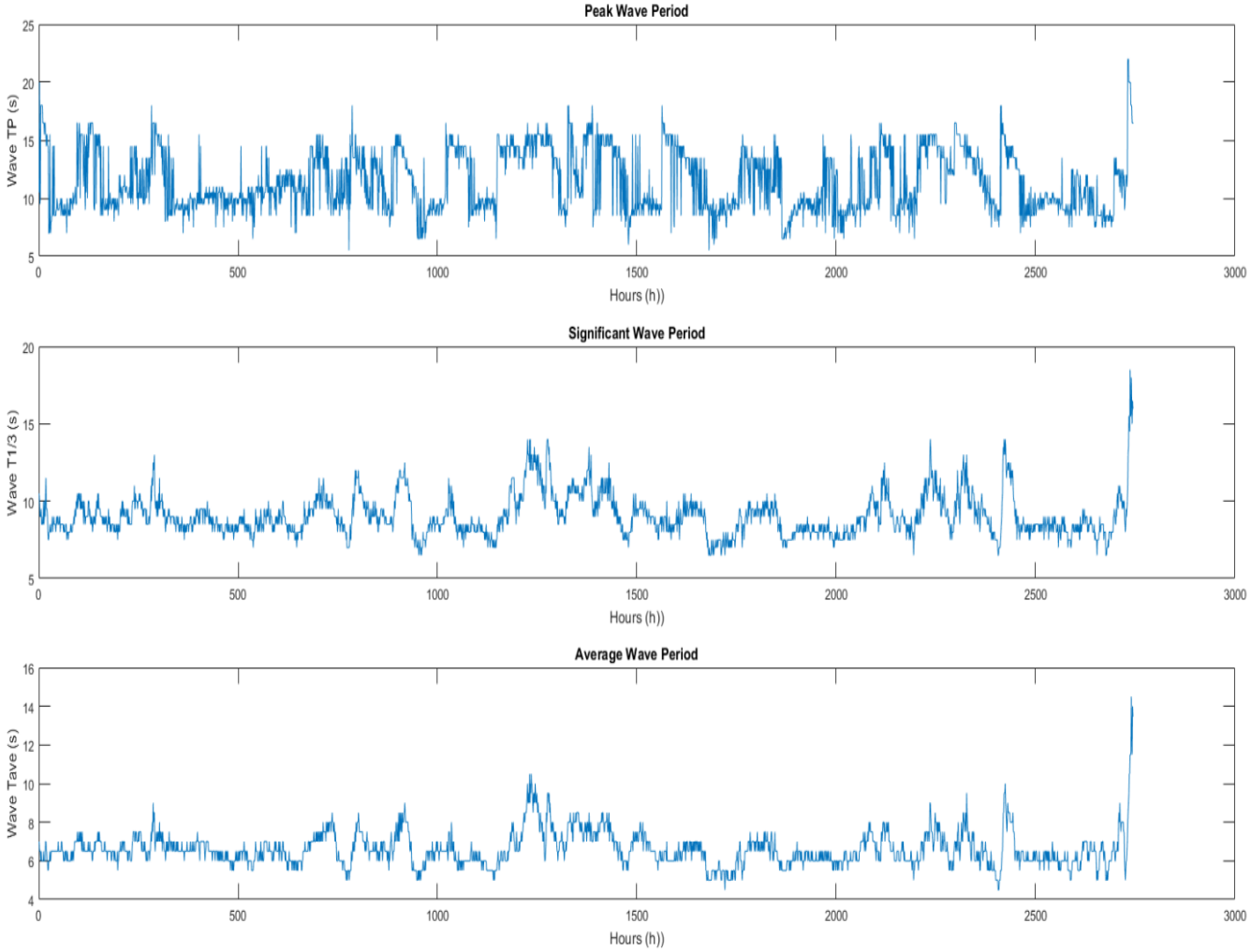


www.carnegiewave.com

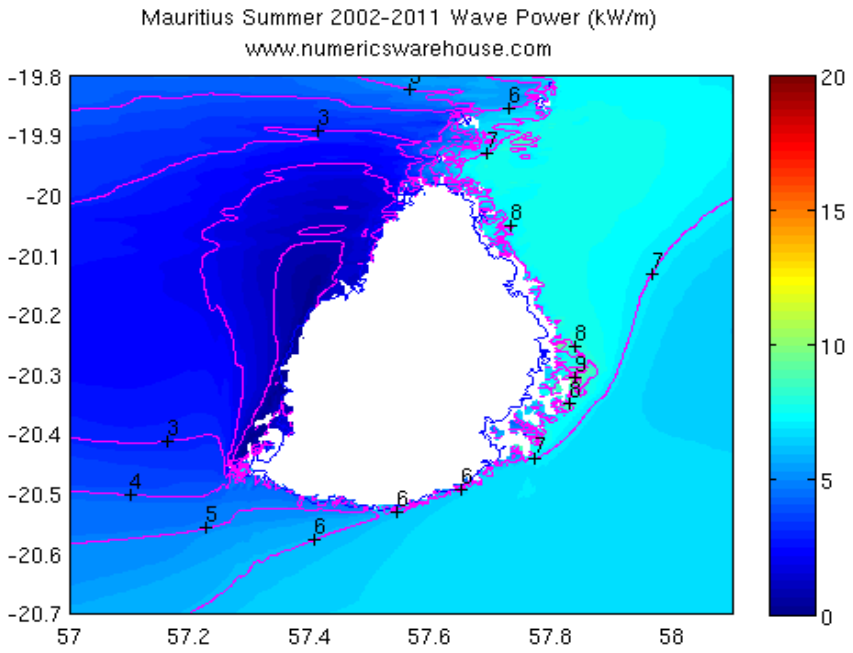
Deployment and retrieval of wave rider buoy for Carnegie Wave Project, Souillac (2016)



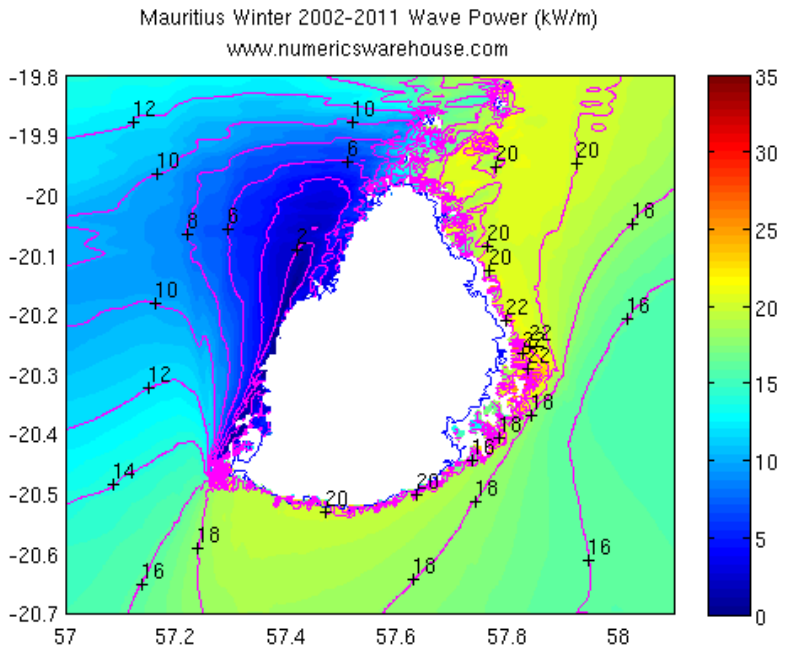
Hourly Wave data through Satellite Transmission



Offshore Wave Energy Potential – Wave modelling



Mean Summertime wave power



Mean Wintertime wave power


NCG

Offshore Wind Farm

Expression of Interest Launched (May 2017)

Offshore Wind Turbines

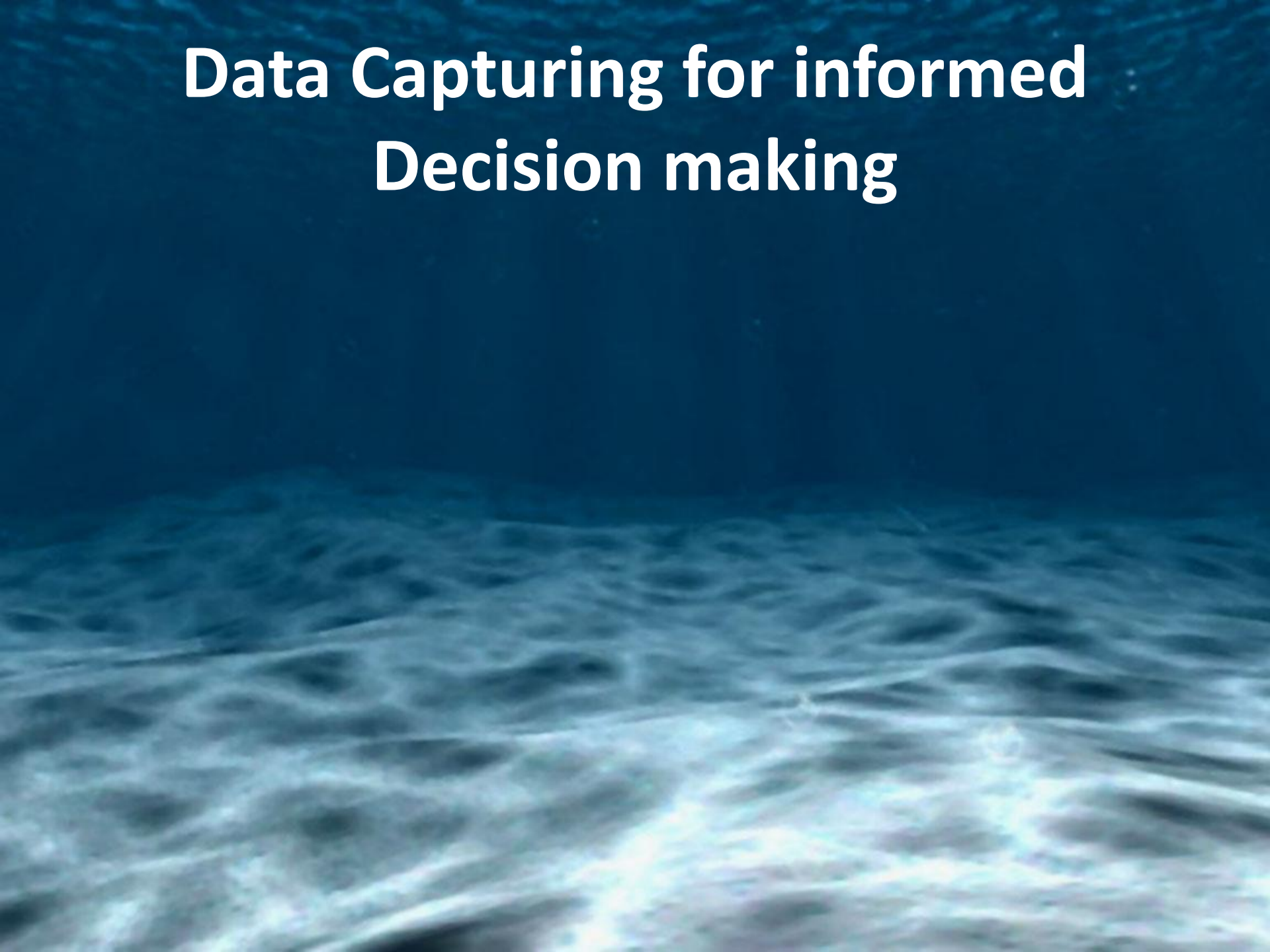
www.siemens.com

SCHOTTEL Instream Turbine (SIT 250)

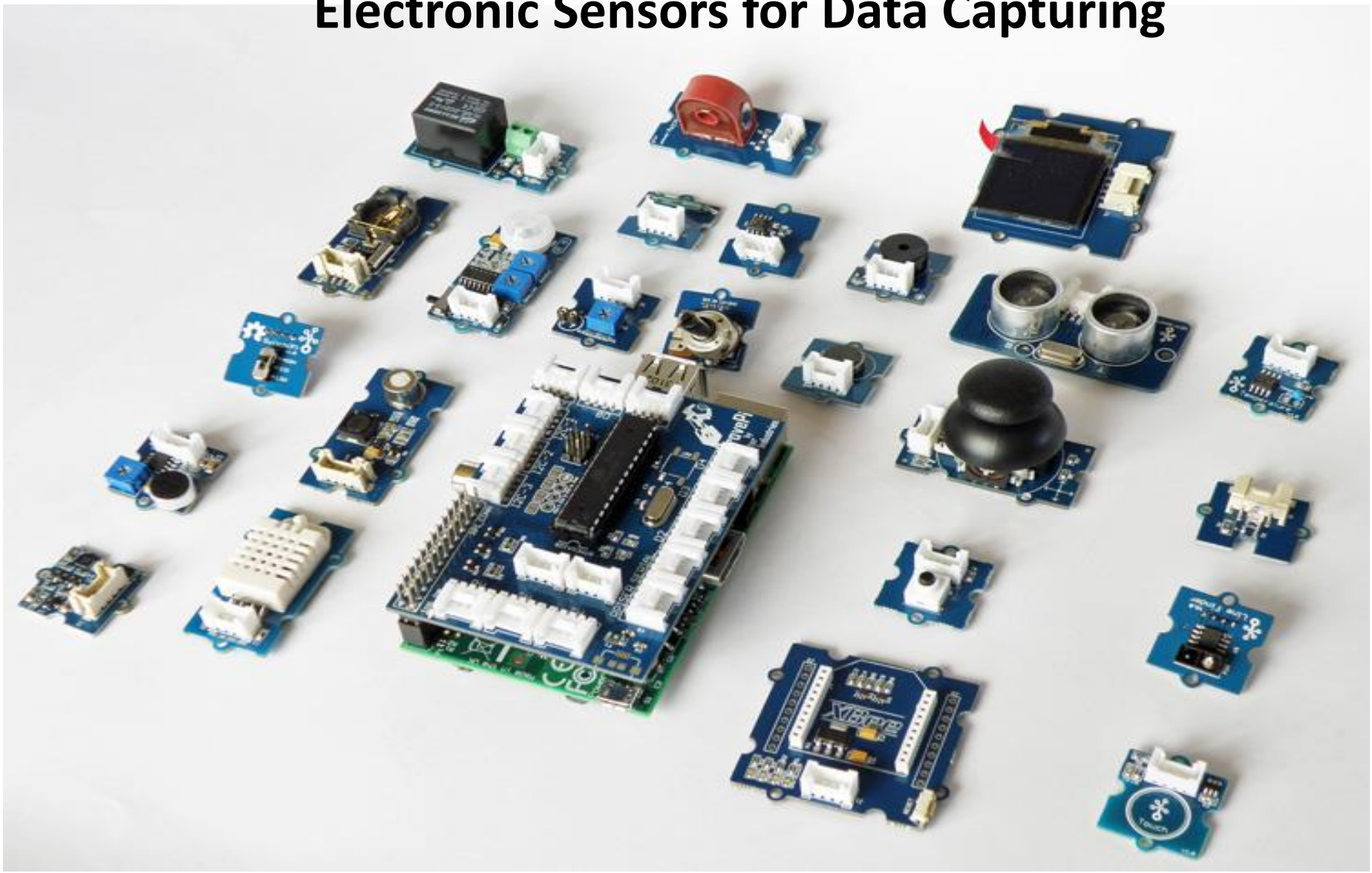
Study on electricity generation from Marine currents

https://www.schottel.de/pt/noticias-e-eventos/noticias/news-detail/?no_cache=1&tx_ttnews%5Btt_news%5D=393

Data Capturing for informed Decision making



Electronic Sensors for Data Capturing



https://www.crazypi.com/grove-sensors-raspberry-pi-india

Data Capturing through the Cloud and I.o.T

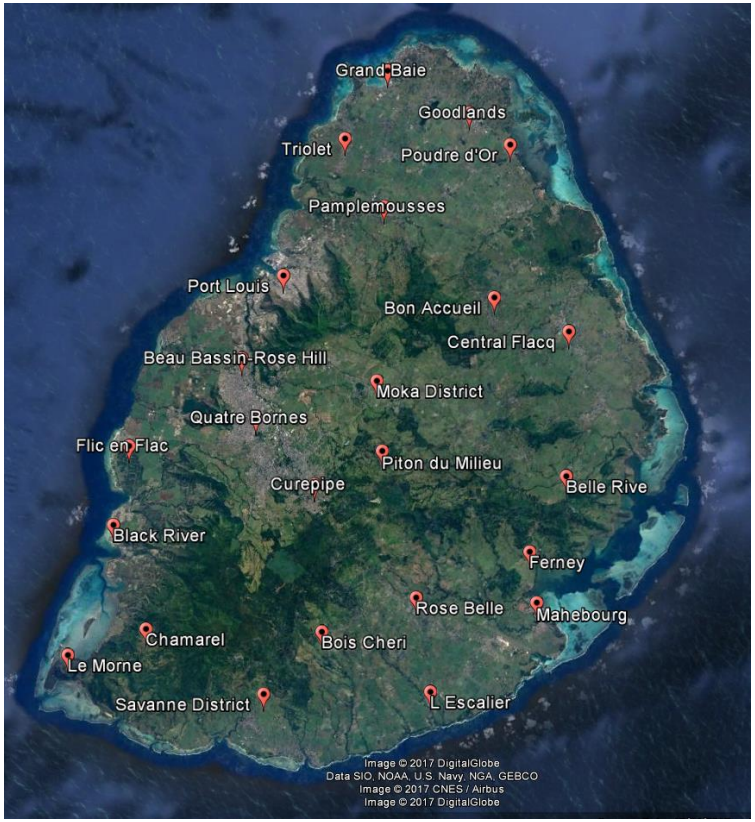
Data Processing

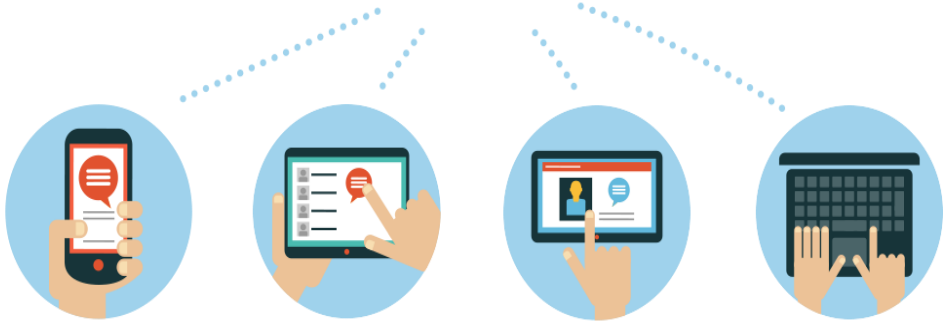
Sensor data from different locations

Data Acquisition

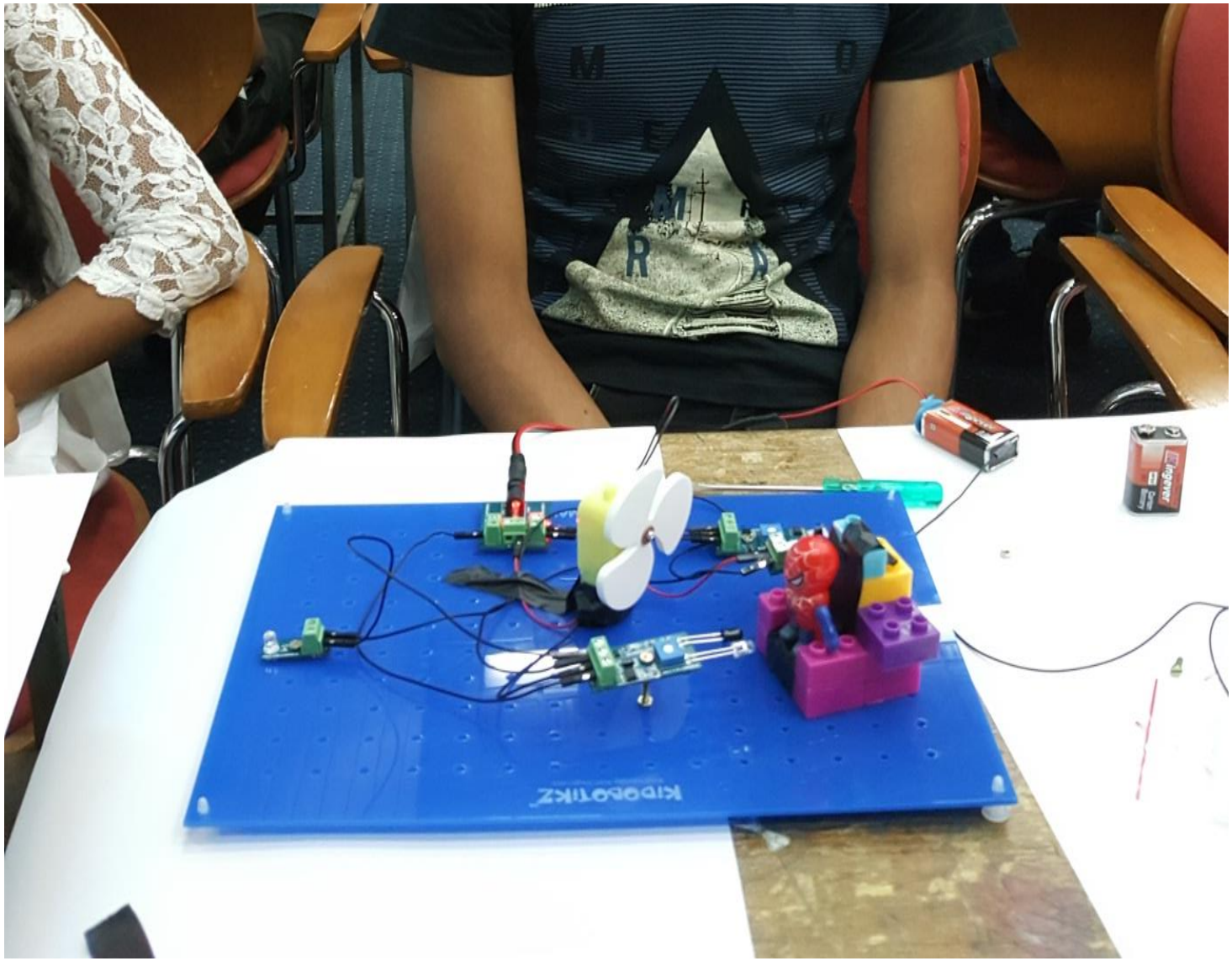
Value added information

App development, notifications, monitoring etc





End Users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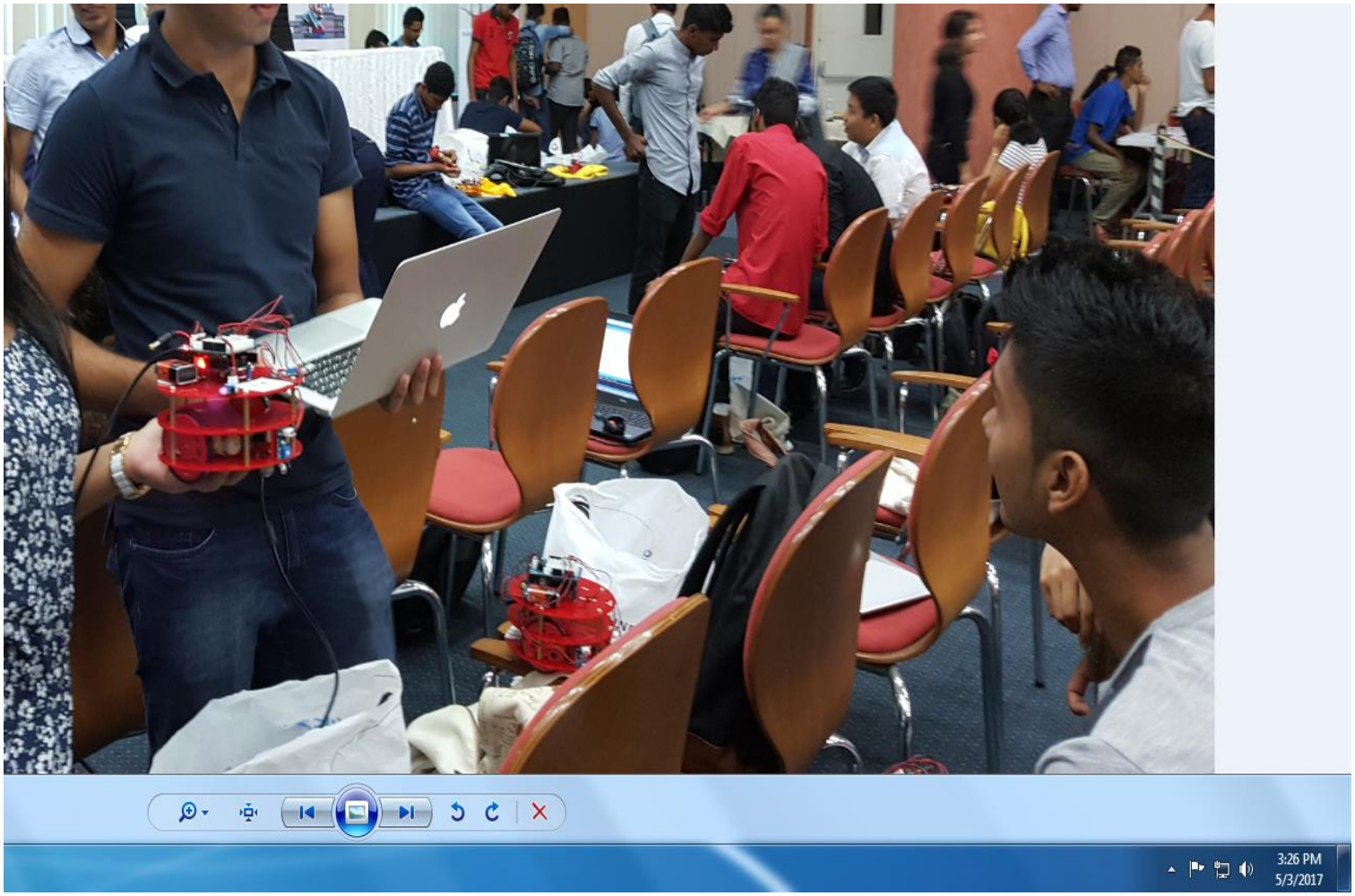
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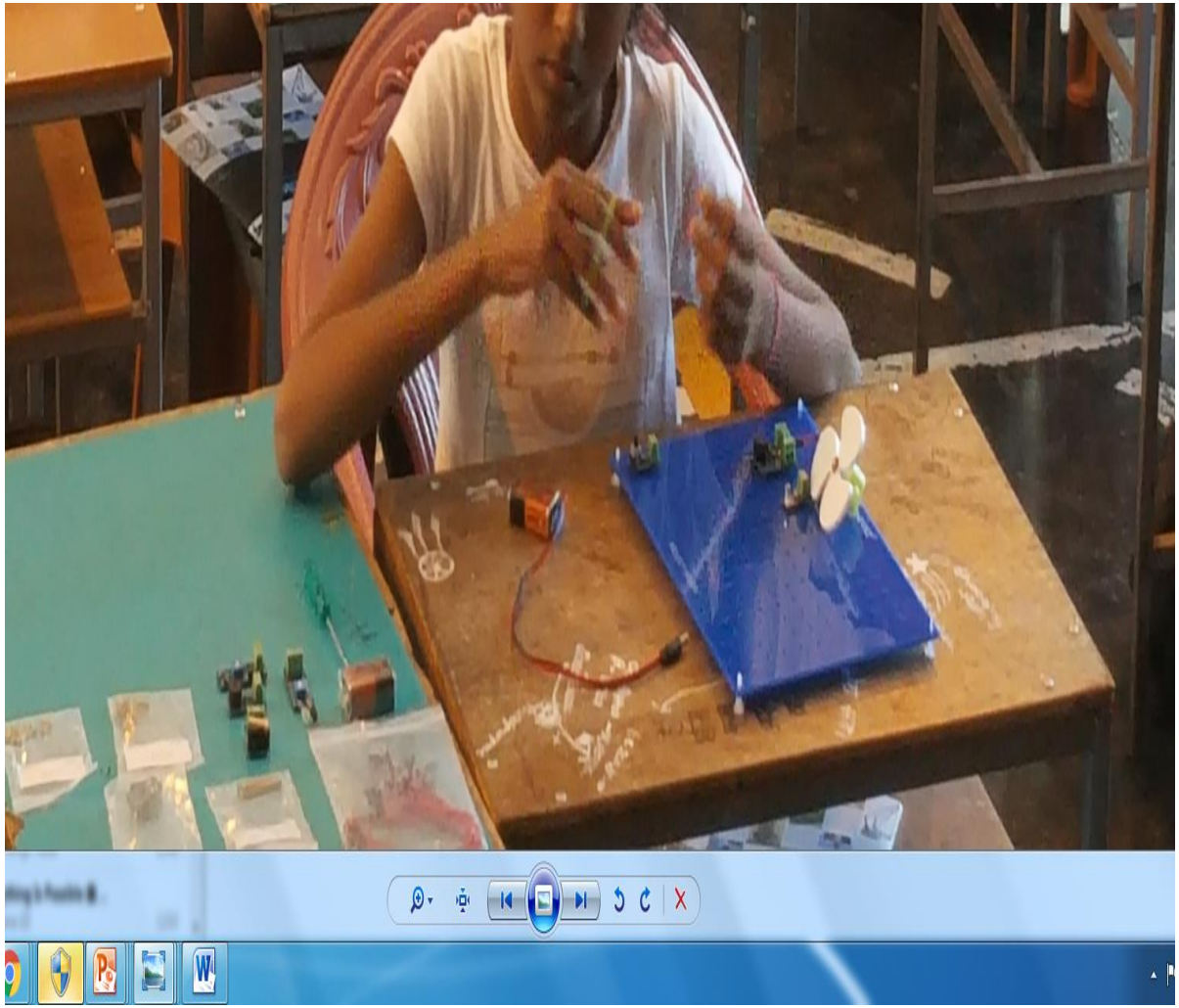

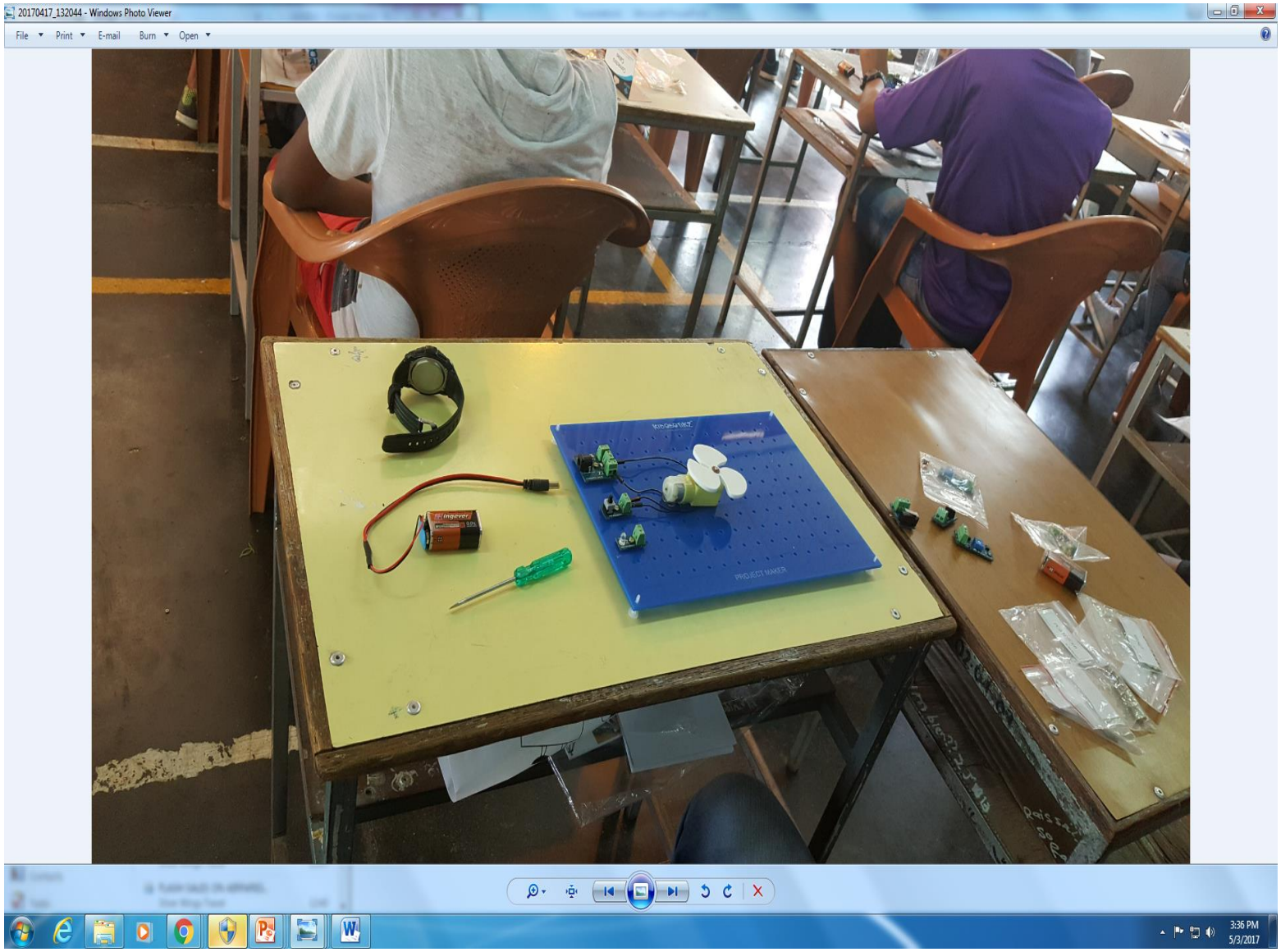
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Prize Award Ceremony for Robotics Training – April 2017

Three Recommendations for SGD 14

1. **Demonstrate Sustainable Economic Benefits** from Ocean resources: Economic drivers: Marine Renewable Energy – Aquaculture -Seaweed Industry – **Private Sector participation**. Ensure Social Equity and Good Governance.

2. **Need for Applied Hands-on STI**: Scientific informed Policies & Actions-Monitoring through Data Capturing – Sensing Devices- Cloud Computing-Data Analytics – Internet of Things – Data Sharing through Open data policies.

3. **Focus on People Development**: Youth (Boys & Girls) – Multidisciplinary – team work, International, Regional, Country & Institutional collaboration. Break the silo's and barriers. **Ocean Entrepreneurship & Leadership skills**. Innovation Bridges to connect researchers and business.