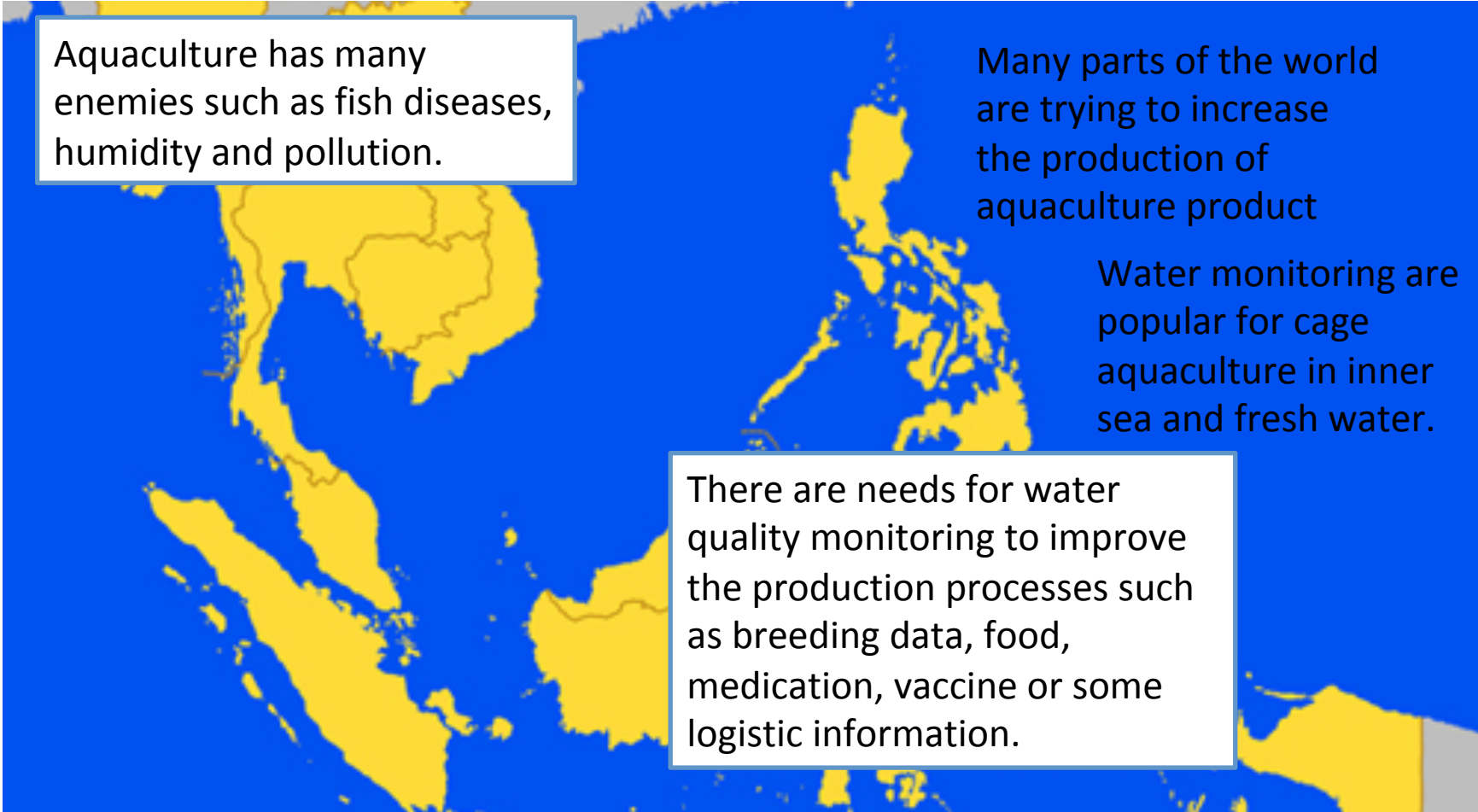


# Wireless Water Cloud Monitoring System for Smart Aquafarming

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# Introduction



Aquaculture has many enemies such as fish diseases, humidity and pollution.

Many parts of the world are trying to increase the production of aquaculture product

Water monitoring are popular for cage aquaculture in inner sea and fresh water.

There are needs for water quality monitoring to improve the production processes such as breeding data, food, medication, vaccine or some logistic information.

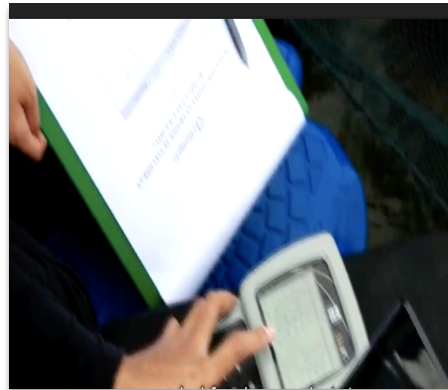
# Needs

## Remote Cage Location



Outings are costly and time consuming

## Data Samples



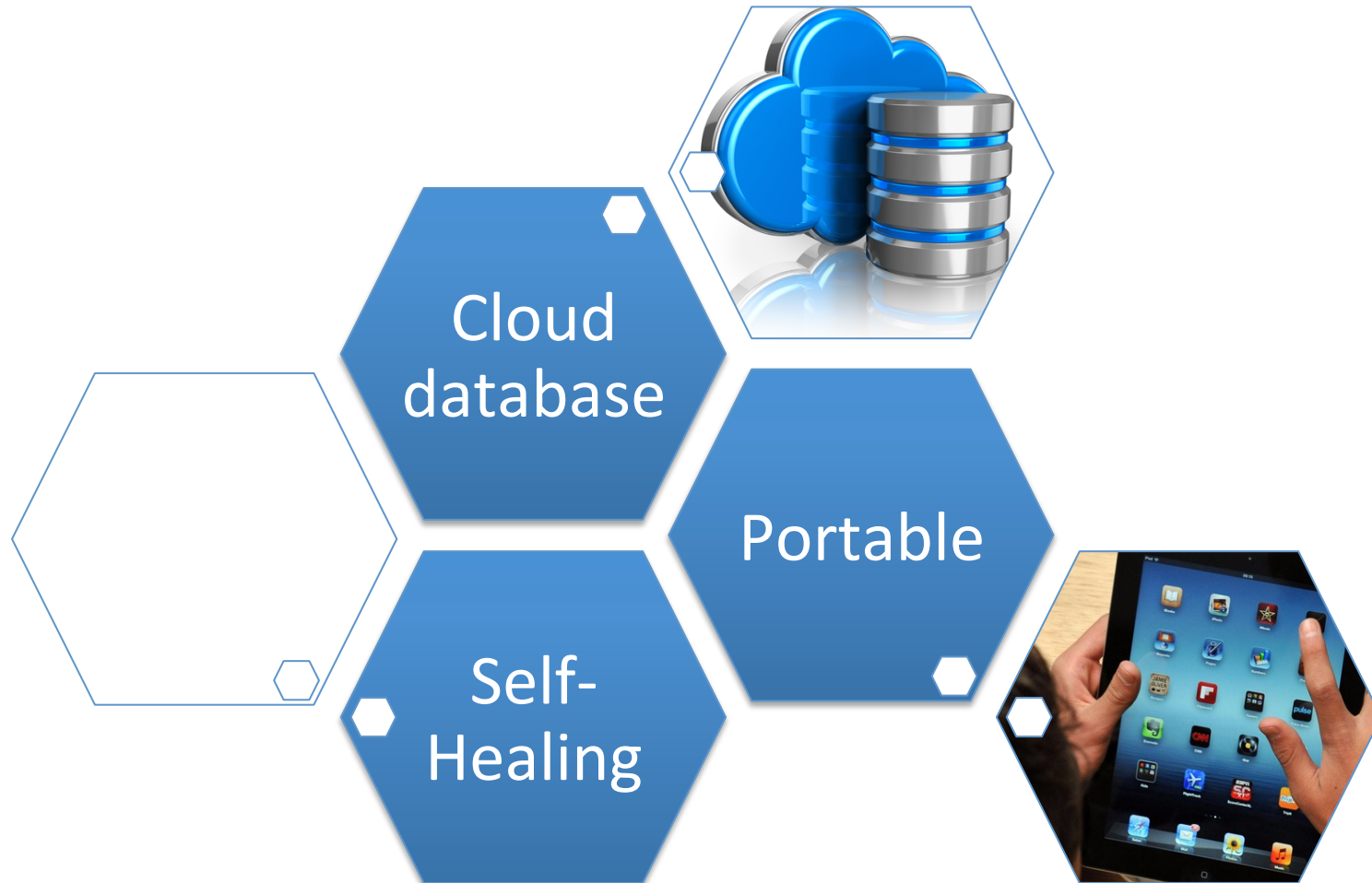
Data pattern for analysis is difficult

## Single point

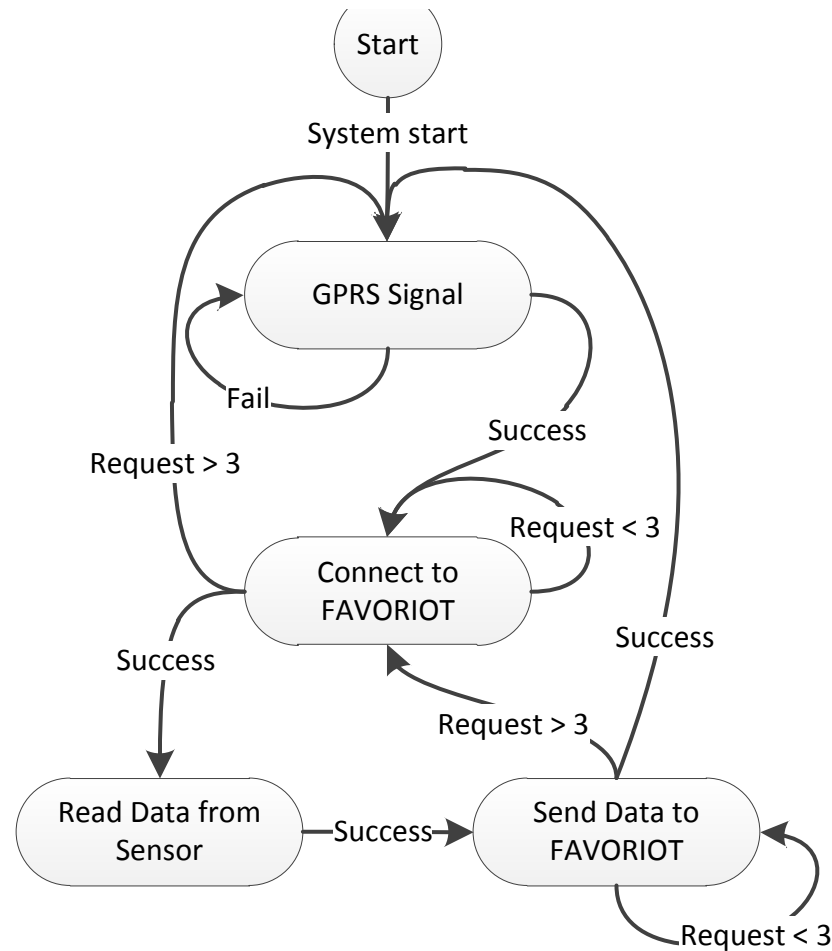


Multiple points are needed for better samples

# Approach

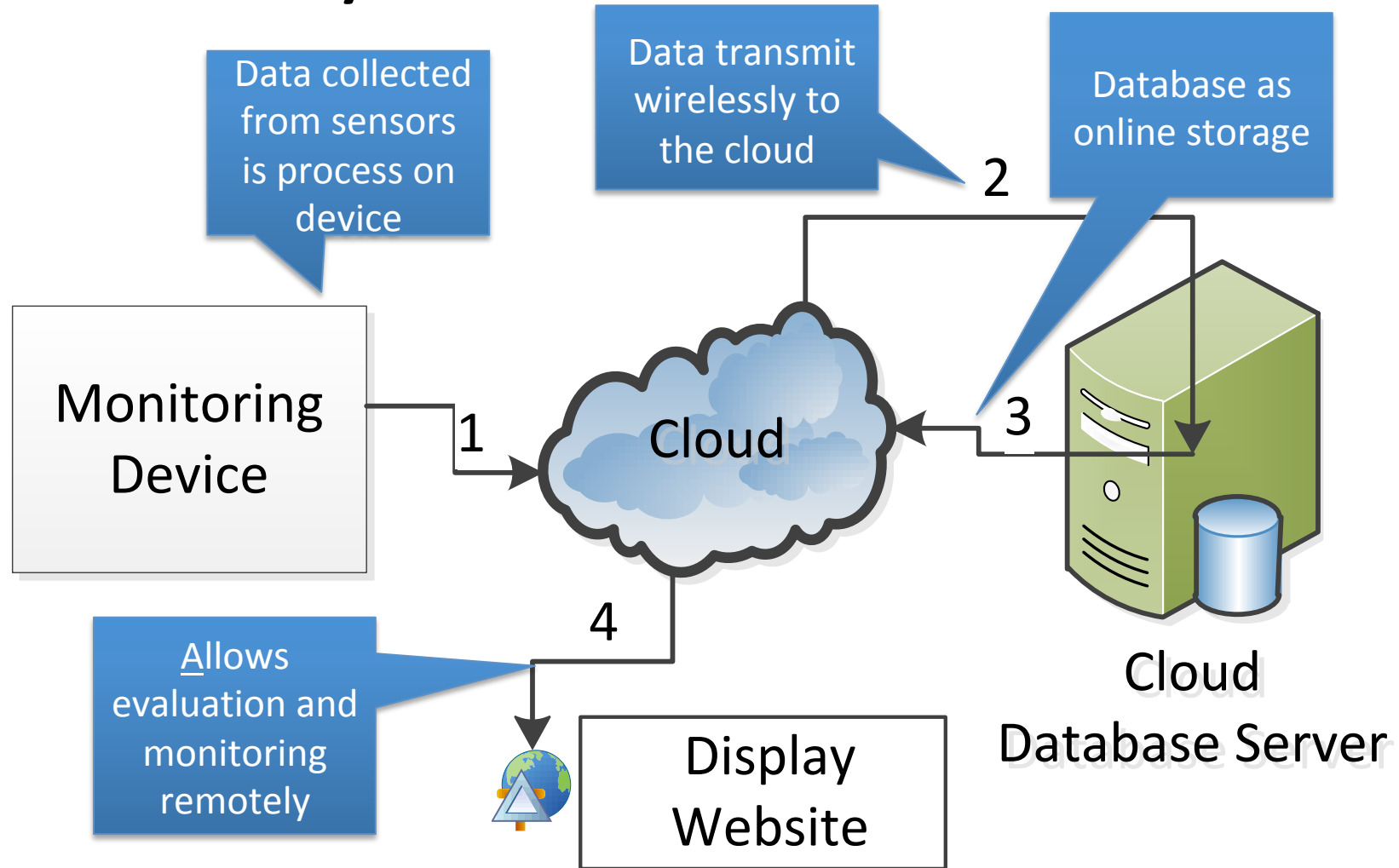


# Self healing algorithm



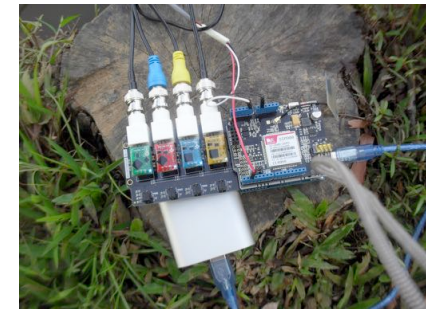
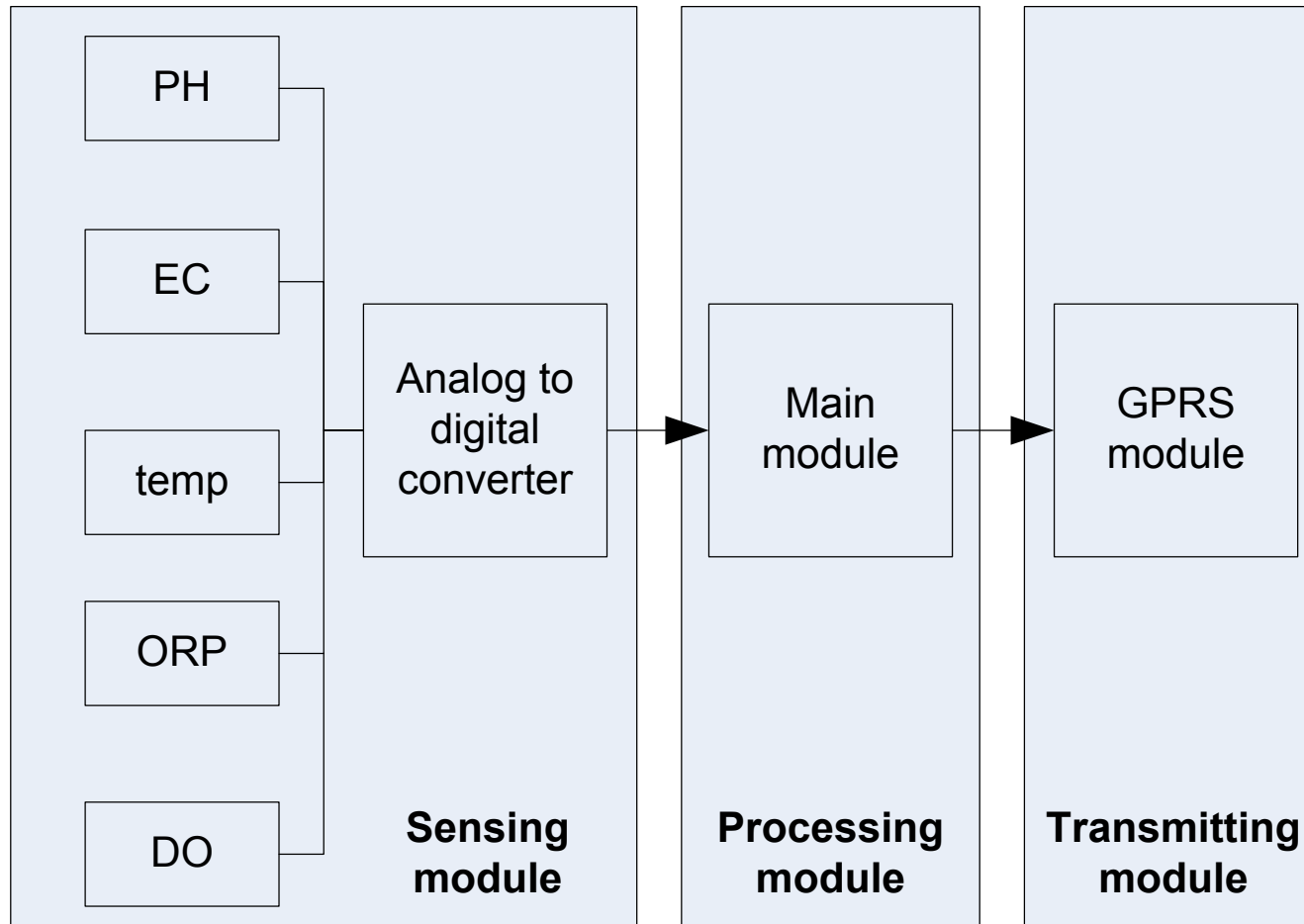
- Four main states *GPRS Signal; Connect to database; Read Data from Sensor; Send Data to database.*
- If any states fail to execute, it will retry.
- If all states fail to execute, it will go the first state (soft reset).

# System Architecture





# Component in WQ



Prototype lab device

# Analysis on Self healing algorithm

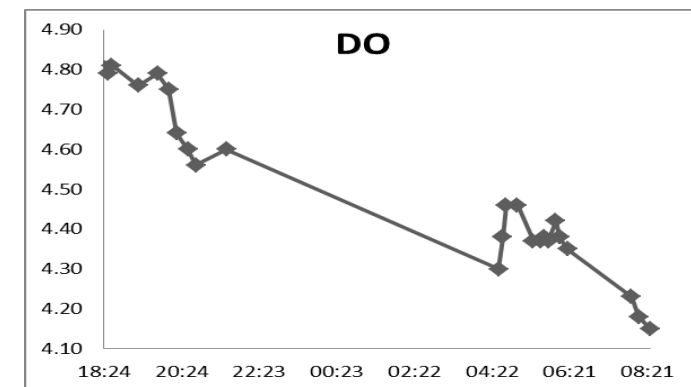
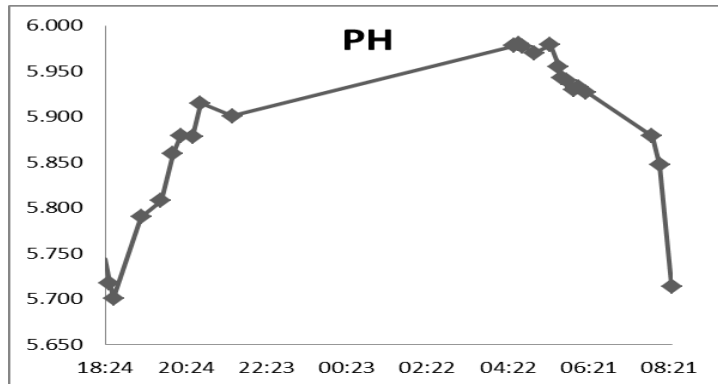
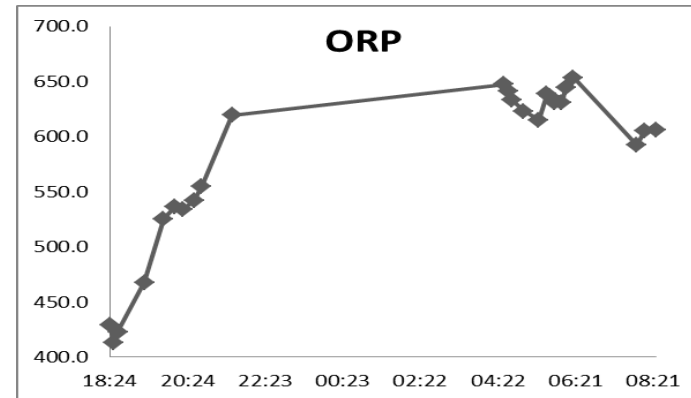
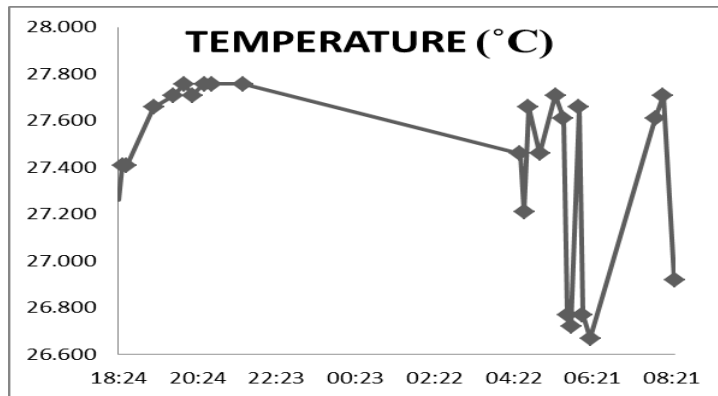
Data are real-time and taken from 6pm to 8am next day.

No data transmission after 10:00pm onwards due to disruption of wireless service

Module manage to recover at 4:22am. The latency is estimated to be 382mins.

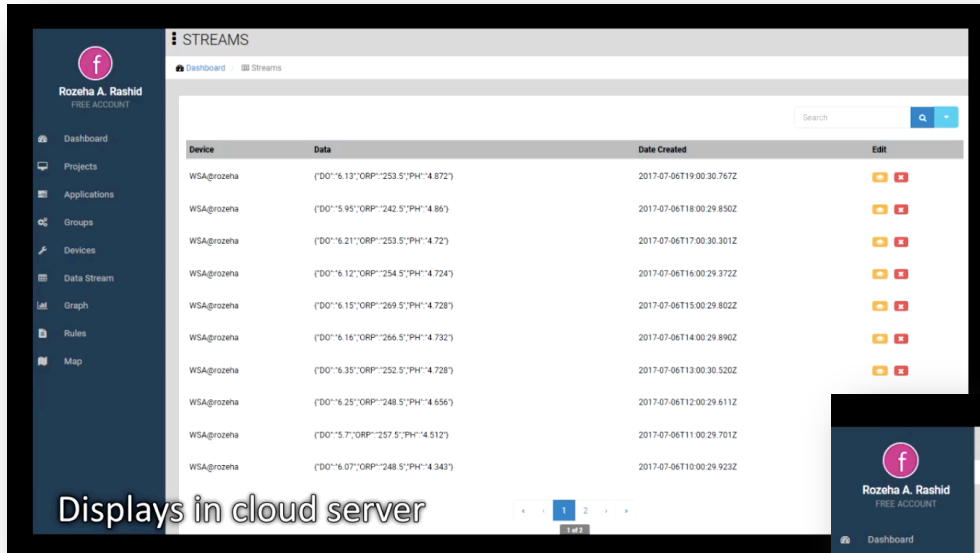


# Analysis on Self healing algorithm























The self-healing algorithm is able to continuously transmit data using soft-reset transceiver.

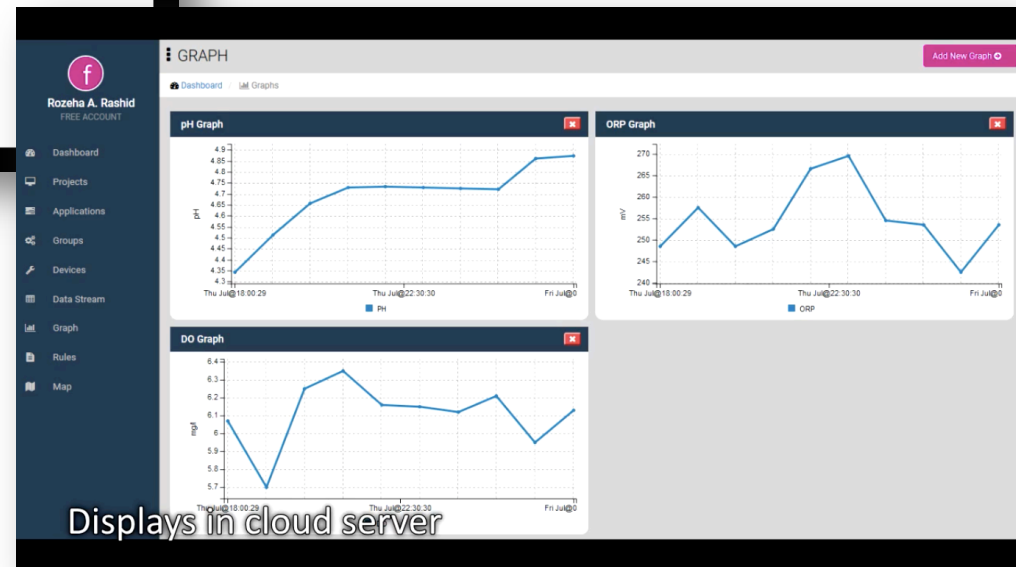
# The database display



Streams

Device	Data	Date Created	Edit
WSA@rozeha	("DO":6.13;"ORP":253.5;"PH":4.872)	2017-07-06T19:00:30.767Z	 
WSA@rozeha	("DO":5.95;"ORP":242.5;"PH":4.86)	2017-07-06T18:00:29.850Z	 
WSA@rozeha	("DO":6.21;"ORP":253.5;"PH":4.72)	2017-07-06T17:00:30.301Z	 
WSA@rozeha	("DO":6.12;"ORP":254.5;"PH":4.724)	2017-07-06T16:00:29.372Z	 
WSA@rozeha	("DO":6.15;"ORP":269.5;"PH":4.728)	2017-07-06T15:00:29.802Z	 
WSA@rozeha	("DO":6.16;"ORP":256.5;"PH":4.732)	2017-07-06T14:00:29.890Z	 
WSA@rozeha	("DO":6.35;"ORP":252.5;"PH":4.728)	2017-07-06T13:00:30.520Z	 
WSA@rozeha	("DO":6.25;"ORP":248.5;"PH":4.656)	2017-07-06T12:00:29.611Z	 
WSA@rozeha	("DO":5.7;"ORP":257.5;"PH":4.512)	2017-07-06T11:00:29.701Z	 
WSA@rozeha	("DO":6.07;"ORP":248.5;"PH":4.343)	2017-07-06T10:00:29.923Z	 

Displays in cloud server



# Conclusion

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Wireless user-friendly system

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Able to transmit data wirelessly

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Able to monitor data remotely

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Reduce cost on outings

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Data pattern will able to provide estimation

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# Plan for connected projects

To extend as an IoT  
item in smart  
environmental  
monitoring system

Include other sensors  
for other aquacultural/  
agriculture/  
environmental  
applications

Include fog computing  
processing

like other  
Yukran  
Terima  
**thank**  
people  
others  
Mercy  
able  
why  
simple  
Everyone  
**YOU**  
say  
kasih  
Just  
should  
courtesy  
not  
Gracias  
gratitude  
this  
saying  
that  
help