**System Design**

**Assignment 3**

**Number 2**

***Does your application require local processing and must work in an occasionally-connected scenario?***

Since RIGboat is controlled using a mobile device and data is transmitted through a mean of communication, the app require local processing to for both functionalities. Controlling RIGboat means that controls are being transmitted form the mobile app to the Lab that will execute the required procedures, hence local processing is required.

As for the architecture, the app must work in occasionally connected scenarios based on the requirements, assuming there’s a bad weather and RIGboad is collecting data while there’s no connection with other storage that receive and store near real-time data, data should be stored locally till a connection is available.

***Does your application depend on server processing and will always be fully connected?***

Based on what RIGboat mission is, a server is not needed at the current time, hence no server processing is needed.

Bad weather, same as battery life, will affect the connection between RIGboat and other applications that will be controlling and using collected data, hence RIGboat will not be fully connected to the client devices.

***Does your application require a rich user interface, has limited access to resources, and must be portable on multiple platforms?***

Based on the before answers, we **don’t** need a rich user interface, hence a RIA will **not** be implemented.

***Consider your requirements while answering these questions, and once answered, decide on the type of application (i.e. architecture) that is most appropriate.***

Features:

1. Local processing
2. Occasionally connected scenario
3. No server side.

Hence we will implement a rich client application.

***Next, discuss any two common development issues that must be considered and solved in your application.***

Two common development issues:

1. Caching :

We should take into consideration that the mobile app will be connected and functioning while RIGboat is collecting data, hence caching data will be during RIGboat’s mission, and it has a limited battery life.

If the mobile where the app is running have limited resources, such as RAM fails, low battery,or low processing speed , the app will get slow resulting in bad user experience and might lead to data lose if it crashes before storing data in another storage such as a database on online cloud .

1. Synchronization :

Acquiring near real-time data as temperature, quality, and images should be synchronized to the time we save data to be accurate with data we save and view.

Failing to do so might affect the quality of data that is being studied and viewed, beside that the misleading inputs to the database.

Assuming that there is more than one RIGboat is collecting data, all the data should be send synchronically to one storage and saved timely.

***Lastly, what will the presentation and business layers look like in your application, and how will they communicate?***

The presentation layer and the business layers both lays on each of the client’s devices (Controllers and Observers), for example, the MobileDataDispaly observer will have its presentation and business layers on its mobile device and so on.

Presentation layer and business layers will communicate on event triggers, such as when a user click on GetData button in the presentation layer, the business layer well return the data requested with function callback.