**Spike plan 1**

* **Name**: Spike test using firebase and johnny-five as the platform.
* **Context**:

This spike is used to test the client response time when motion is detected by the motion sensor connected to the server. Motion sensor communicates with the server through Johnny-five library, and the server transfer data to firebase then client will get the data from firebase. The response time is calculated using the data receiving time subtract the data sending time, all times used in the calculation are in milliseconds.

* **Gap**:

The technologies used in this spike program are newly learned by team members, so there might be some aspects of these technologies the team members are not aware of or not familiar with. Through this spike test, the team wants to learn about the performance of the platform if it is used in the project and what factors will affect this performance. Therefore, when the platform is implemented in the project, it will not give negative affect to the project’s overall performance.

* **Goals/Deliverables**:

The goal of this spike is to calculate the response time using this platform to transfer data. Therefore, the deliverables the team wants is 10 response time acquired from 10 different motions detected. Using these response times, the team can get the best and worst response time and calculate the average response time. These information can help the team to decide which platform will be used in the project.

* **Planned start date**: 13/APR/2017
* **Deadline**: 23/APR/2017
* **Planning notes**:
  + Spike procedure: 1. install "node.js", "johnny-five" and "firebase" if required. 2. Follow firebase instruction to setup firebase. 3. Design firebase data structure. 4. Create scripts to initialize "firebase" and "johnny-five" in "node.js" server. 5. Create scripts to read motion from sensor. 6. Create HTML client initialize with "firebase database". 7. Create scripts to make communication between "node.js" server and "firebase database" 8. Create scripts to make communication between "client" and "firebase database". 9. create "package.json" file to install all necessary models.
  + The responsibility is divided as such: one member will make the spike program, record the outputs from it. The other member will use these information to analysis which is the best option for the project.