**Project Scope Statement**

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| **Project Title:** Intruder Counter Project  **Date:** 28 March 2017  **Project Members:**   * Kelvin Benzali * Jason Xu |
| **Project Vision:**  To develop a web application that detects intruders and display the corresponding informations, using Google cloud based messaging services. |
| **Product Characteristic and Requirements:**   1. The application is implemented in Node.js which connect the IoT kit with the Firebase server and update any changes in database to the client web page. 2. The application is able to detect any movement from the motion sensor with an assumption *“A set of four consecutive motions is considered as intrusion if it has the sequence: Long Short Long Long”.* 3. The application is able to reads any data from motion sensor and send it to the Firebase server database. 4. Allow the user to interact with the IoT kit and the database from client web page app including the switch LED on/off, switch motion on/off, and reset database command. 5. The client web page app is able to fetch old data from the database and displays the information data including the long motion detected, short motion detected, and intruder motion |
| **System overview**  As stated in project vision, the main objective of the project is to develop an intruder detection system and use Google Firebase real time DB as a communication platform.  The motion detection system will be implemented in Node.js which connects the IoT kit,in this case, the Arduino UNO and update any relevant information detected by the PIR sensor onto Firebase DB server.  The client, a web page in this case, will then grab the data from Firebase realtime DB and display the corresponding information. |
| **Key constraints**  Arduino board- due to hardware limitations on the Arduino board and the PIR sensor, the motion detection can not measure the length of motion detected very accurately and in very rare cases, fails to detect subtle motion.  Server - can not handle multiple sessions, so if a large amount of clients are requesting from the server then the server will crash.  Client - The client does not have the function to download all motion detection related data from Firebase realtime DB for viewing offline. Also the client can not see details about the motions detected, they’re only able to see the types of the motion detected and its total frequency. |

