**Draft Submission**

**Team MindS**

**Members:**

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### **Overview:**

Our IoT system will use the SIM7670C module for 4G/LTE connectivity and an Arduino Uno R3 MCU, with data transfer and analysis managed through the Blynk platform and MQTT protocols. The goal of the system is to monitor the LTE signal and upload data to a server every 2 minutes with a delay of 1 second, and with a 99% success rate.

* Solution: Design an IoT system within the following devices and specifications:
* Module: SIM7670C (with 4G/LTE connectivity)
* MCU: Arduino Uno R3
* Platform: Blynk (https://blynk.io/)
* Protocols: MQTT

### **Idea:**

#### 1. Hardware:

* Connect module SIM to MCU
* Able to transfer and receive 4G/LTE signal
* Transfer signal to server
* Transfer necessary data to the server (The data included at least the the device information, RSRP, RSRQ)
* Able to stably run for at least an hour and upload data to server every 2 minutes with a delay of 1 second with success rate of 99%

#### 2. Software:

* Able to show the required data to the dashboard
* The user can change report contents as needed
* The user can configure from the application operational parameters such as report frequency, and control request for immediate status report

### **Operation Steps:**

* Set up the hardware and ensure it is running as desired.
* Use the Blynk platform to convert received raw data into their appropriate sections.
* Utilize Blynk functions to create visualizations of the data.
* Configure operational parameters, such as report frequency, and control requests for immediate status reports through the application.
* Monitor the system's performance and data upload success rates regularly, using the defined metrics.
* Analyze the data and make necessary adjustments to the system as needed.

Note: It's important to measure the success rate of the system's data upload to the server. This can be done through various metrics such as:

* Up-time: the amount of time the system is running without failure
* Data loss: the percentage of data that was not uploaded to the server due to connection issues or other errors
* Success rate: the percentage of data that was successfully uploaded to the server within a given time frame
* These metrics can be monitored and analyzed through the Blynk platform or other monitoring tools to ensure the system is performing as intended.

