**Definition and Scope**

With the ever-increasing amount of data that is inherent in an IoT world, the key to gaining real business value is effective communication among all elements of the architecture. **The** platform delivers an integrated, secure, comprehensive platform for the entire IoT architecture across all vertical markets. The platform allows application developers to build and deploy the apps that make use of data received from the sensors and provide essential information to the users. The platform abstracts the middleware of the system and the APIs are exposed to the developers.

Following factors need to be analyzed for efficiently developing a platform-

* Real-time response capabilities for millions of device endpoints
* Faster time to market
* End-to-end security
* Integration with IT systems
* A worldwide, coordinated ecosystem of partners
* End-to-end compatibility and lifecycle solution management

**Subsystems of the Project**

* **Input Subsystem –** It consists of a collection of sensors which could be heterogeneous.
* **Control Subsystem-** The gateway, communication channel and the filter server together constitute a control subsystem.
* **Output Subsystem-** It consists of the application programming interface.
* **Sensors**

A **sensor** is a transducer whose purpose is to sense (that is, to detect) some characteristic of its environs. It detects events or changes in quantities and provides a corresponding output, generally as an electrical or optical signal.

* **Gateway**

A gateway interconnects networks with different network protocol technologies by performing the required protocol conversions.

* **Filter Server**

A filter server checks for the validity of the data it receives from the gateway. If invalid, it discards the data.

* **Application Platform**

It allows developers to build secure, data-driven application using our API, which can be accessed from mobile devices anywhere and anytime.

**Interactions involved across subsystems**

**Sensor-Gateway Interaction -** Socket programming is used for interaction between sensor and   
 gateway.

**Gateway-Filter Server Interaction**- RESTful services are used for interaction between Gateway and filter  
 Server.

**Filter Server-Application-** RESTful services are used for interaction between Gateway and filter  
 Server.

**Device Interface with system**

Device interface is provided through Application Programming Interface (API). API provides the functions to the developer and to the administrator to view the details of the sensors registered in the system and receive the data sensed by these sensors.

Developers can make use of this data in order to develop useful applications.

Administrators can add or delete sensors currently in the system.

**Registry and Repository**

Sensor registry stores the data sensed by the sensors like temperature, humidity, heat, location etc.

Repository contains the details of each sensor and the type of data sensed by it. For example heat sensor, temperature sensor etc.

<!--`Registry maintains all the records of the sensors connected to the gateway. /\* commented

Repository refers to a storage location, often for safety or preservation. 🡪 Section \*/

**Logic server(aPaaS)**

**Application platform as a service (aPaaS)** is a cloud service that offers development and deployment environments for application services.

**Location Services**

Location Services will provide developer the location of the sensors from which developer intends to receive the data. Accordingly developer can make use of this information so as to develop domain specific applications.

**Mobile Interface**

Mobile interface will be provided through an android application which receives data from the application programming interface(API) via a filter server.