**INTERNET OF THINGS (IOT) ASSIGNMENT**

Topic:-SOCRADES-Realizing the enterprise integrated web of things

**Submitted By**:- Sanya Sachdeva

**Rollno** :- 12001174

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**Group** :- 3CE-6

**INTRODUCTION**

What is SOCRADES?

Modern factories require agility and flexibility. With the rapid advancement in information technology that includes both hardware as well as software, new challenges are set for the future industries as there is requirement of cross factory functionalities. They need mashing up of the services which is very beneficial for modern industries. The devices can either host these services natively or can use in higher systems.

SOCRADES thus was a visionary project that was based on this concept.

* This project was Industry driven
* It was funded by European commission
* It was driven by the key need for cross layer M2M collaboration
* It was installed in Industries to integrate all the equipments in Industry which includes both hardware as well as software that includes the operation or services of the machine.

Where SOCRADES are used?

SOCRADES work best where there are heterogeneous machines because each machine has a different demand and different software and perform different functionalities. Without it we would have to perform all tasks separately giving different commands and more labor is required but with the help of SOCRADES we just have to Integrate all these together and just give one command which perform all the functions as thus save all the manpower required earlier.

SOCRADES are not useful in small industries where there are homogeneous machines because if there are 100 machines of the same kind we can already operate them using a single command thus already less labor required. Thus we use it at the place where it gives more benefits.

SOCRADES project proposed and realized SOA integration. It is based on IOT architecture which aims on not only peer to peer communication among the devices but also there interaction with the enterprise system.

**The SOCRADES Integration architecture (SIA)**--It enables various enterprise level applications to interact with a large range of networked devices and also to consume data from them and they make use of high level, abstract interface that features Web Services (WS) standards.

This architecture consists of many layers that shows different types of management:

**ERP, SCM, CRM**--These are the softwares which are providing automated services. Through these they are going to contact with the customers

**Application Interface**: This part enables the traditional enterprise systems and other applications to interact with each other. This interface is working as a glue between the industrial devices and their data and traditional and not automatic information stores.This layer manage relationship with the outer environment.

* Eventing: --Proper scheduling is done to ensure what services should be performed first according to their priority and timespan
* Invocation handler: --It handles the new services or inventions.
* Application service catalog:--They inform about the requirements of the application from the industry to the customer

All these three deal with the customer point of view.

**Service Management**: Functionalities offered by the devices are considered as services. Tools for their monitoring are provided. These services are here to relieve the integration in traditional enterprise landscapes. They publish the benefit and boundary of each service,

**Device Management**: This layer include monitoring and record of devices as well as it also include service lifecycle management.It has a device repository which stores information about the number of devices in the industry.

**Platform Abstraction**: In this layer we enable the wrapping of all devices which are independent of whether they locally support WS or not. These devices are wrapped and represented as services on the higher systems. In addition to service-enabling the communication with devices, this layer provides a combined view to remotely installing or updating the software that runs on devices.

**Devices & Protocols**: These layers is the collection of actual devices present in the industry that connect with multiple protocols to the infrastructure. The plugins of course are required to be in place so that they can be seamlessly integrated to SIA whenever required.

A prototype called Local Discovery Unit (LDU) helps in enabling the dynamic discovery of devices on the premises and there coupling with SIA A local gateway or service mediator enables interaction in a P2P way. To prove the concept of integration among devices at a local and enterprise level SIA is used as a proof.

