INNOVATIONEERING

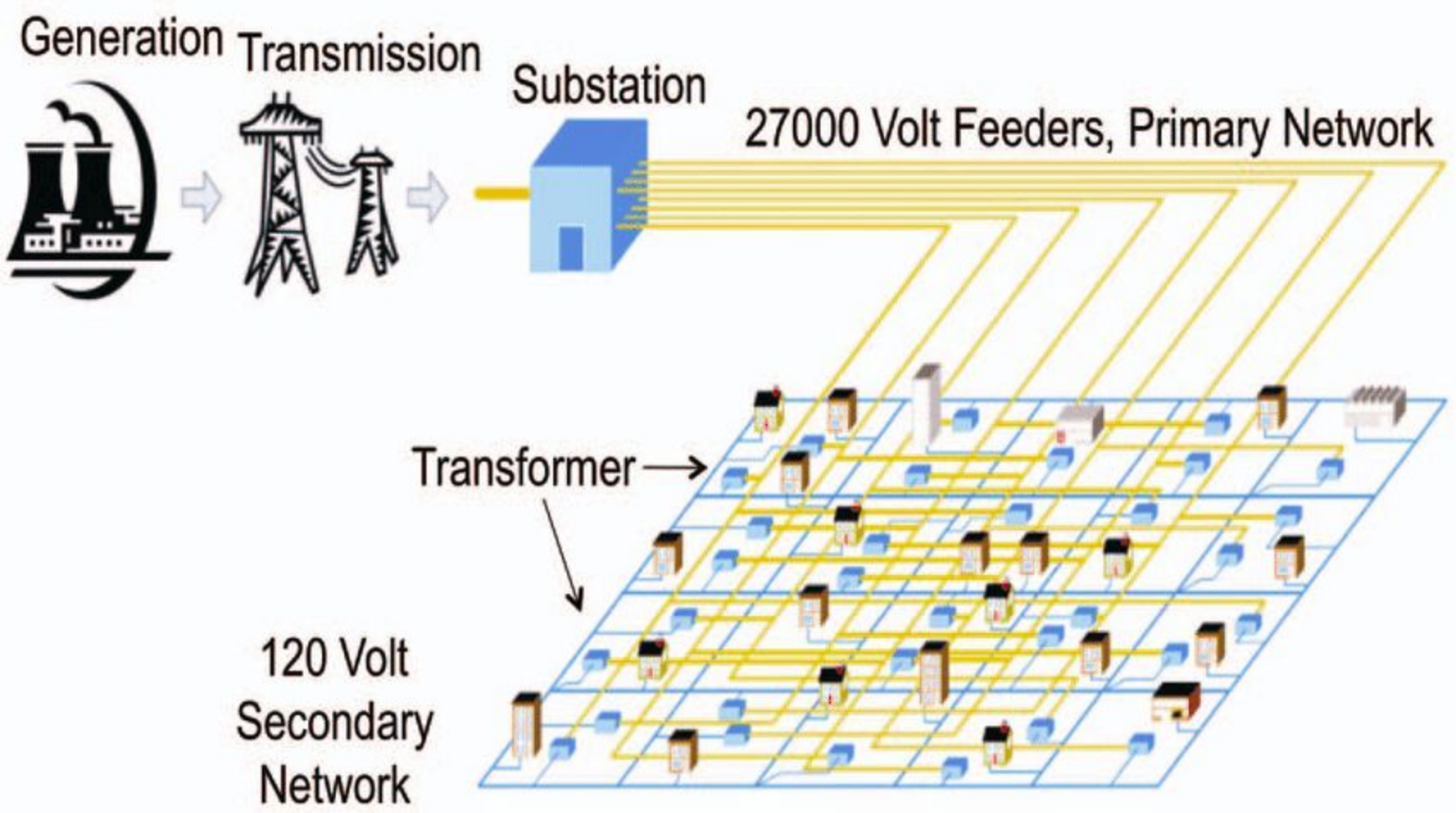
Techfest IIT-Bombay

Power Cut-off Notifier and Transformer Fault Predictor

Team Id - IN-69888554
Mansi Wakodkar
Aditya Mahajan

Understanding the Problem statement

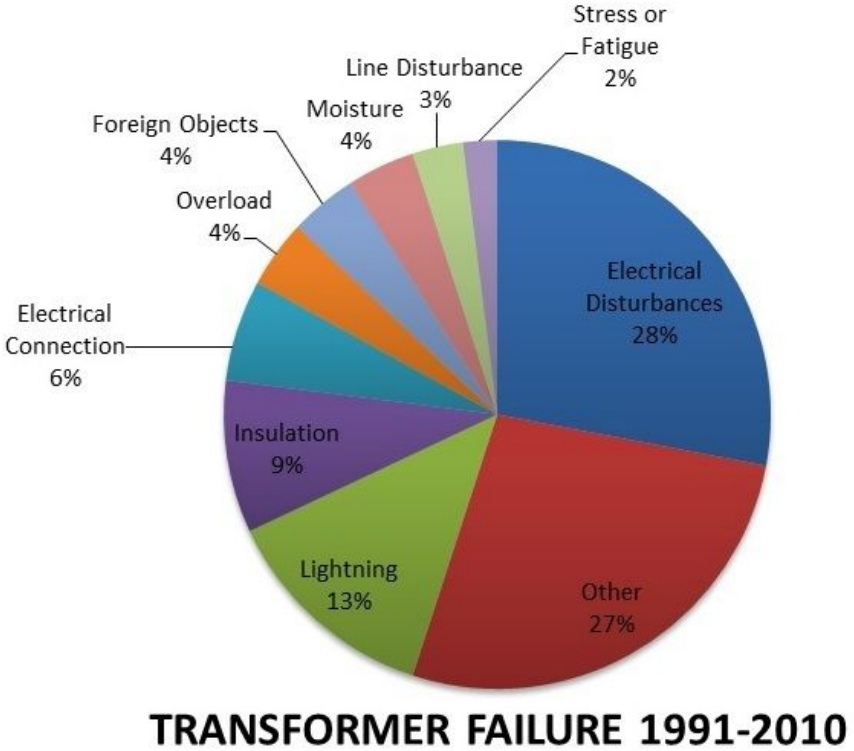
Have you ever been in the situation like you have a very important work pending and need to be done urgently and suddenly the there is a power cut-off and you have no idea when it would come back.


Generation
Transmission
Substation
27000 Volt Feeders, Primary Network
Transformer
120 Volt
Secondary
Network

Problems

- The Toll free number is most of the times busy.
- No Proper communication in the technicians and the people.
- Technicians do not know the problem instantly.
- Technicians know problem after the feeder only when people tell them via call.
- People are unknown about the time required for the repair.
- Technicians can’t have any prior knowledge of the problem.

A large number of Distribution Transformers used in India, particularly in smaller ratings such as 100KVA (11KV/415V, 3 phase) use conventional materials and methods of manufacture, resulting in very high losses. The failure rate of these transformers is very high, around 16% (in Govt. SEBs), which is not favorably comparable to international norms of 1 to 2%.

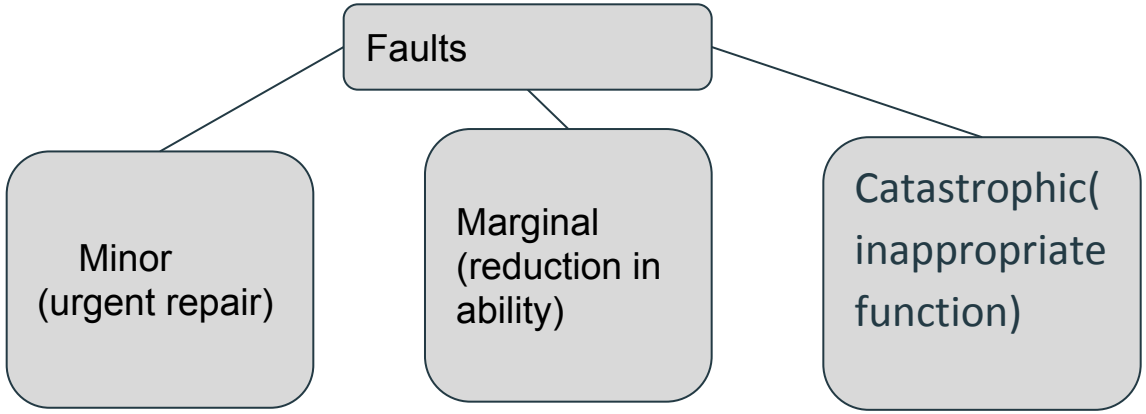


Our Solution

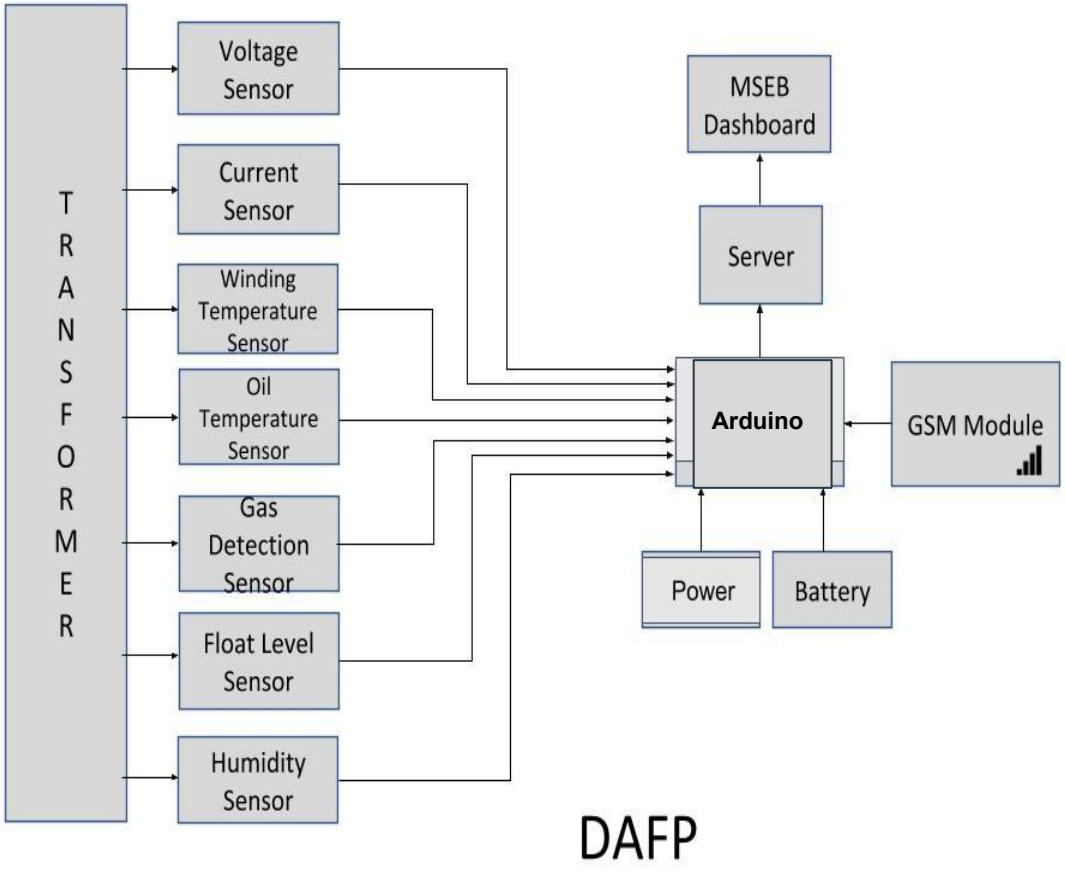
- Machine Learning & Internet Of Things based solution to make communication between the technicians and people very easy.
- People would be able to report the problem with one click.
- Technicians would get the User problems immediately and with the probable location of the problem.
- Users would be able to see the real time status of the problem which would be updated by the technicians.
- Technicians will have a prior indication if our machine learning model detects any anomaly.

ML & IoT

- Our model will also provide the Approximate Survival period of the transformer
- Our machine learning model will tell the administrator about the fault and what maintenance is need to correct that fault



Our machine learning model will take the data from sensors and send to the machine learning model and our model do the analysis of data and it will show the on our online dashboard and it will also check for the faults and suggest the appropriate solution for that fault.



VOLTAGE SENSOR

The **Voltage** Detection **Sensor** Module **25V** allows you to use the analog input of a microcontroller to monitor **voltages** much higher than it capable of **sensing**

CURRENT SENSOR

The **30A** range **Current Sensor** Module ACS712 consists of a precise, low-offset, linear Hall circuit with a copper conduction path located near the surface of the die

AIR SENSOR

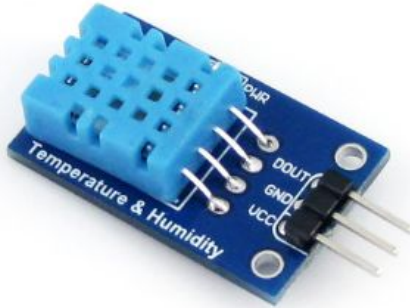
Air Quality **Sensor** (**MQ135**) Description: **Air** quality **sensor** for detecting a wide range of gases, including NH3, NOx, alcohol, benzene, smoke and CO2. Ideal for use in office or factory

Temperature sensor

LM35 is a precession Integrated circuit *Temperature sensor*, whose output voltage varies, based on the temperature around it.

WaterProof Temperature Sensor

This is a pre-wired and waterproofed (with heat shrink) version of the DS18B20 sensor.

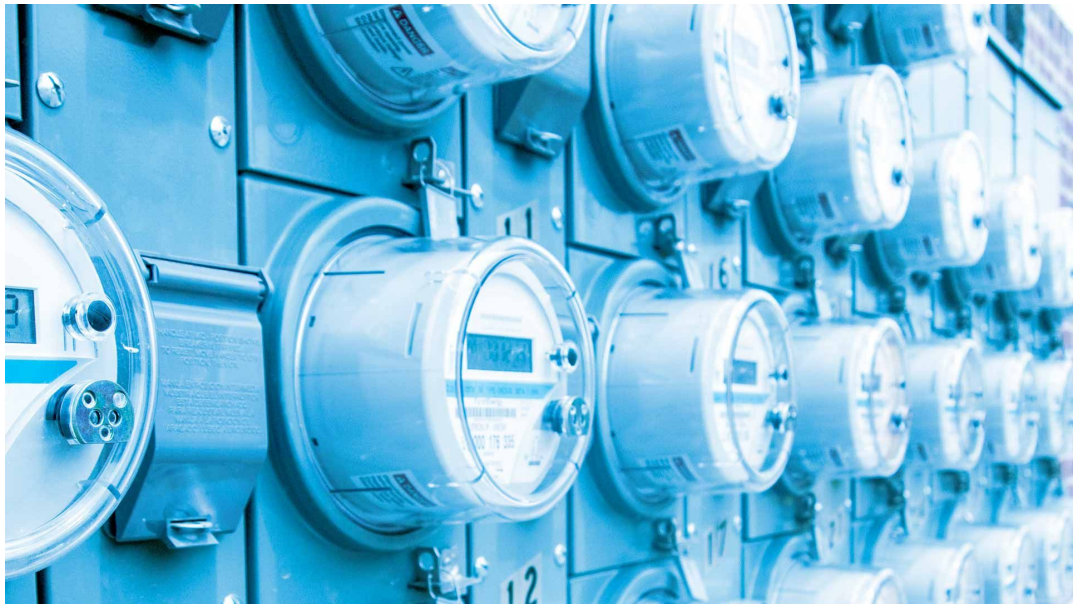


Humidity and temperature sensor

This *DHT11* Temperature and *Humidity Sensor* features a calibrated digital signal output with the temperature and *humidity sensor* complex.

conEdison Solutions®
a Con Edison Clean Energy Business

The solutions provider claims that its IoT solution will enable utilities of Consolidated Edison to “ensure the optimal deployment and operational health of 5 million smart meters, and develop new products and services for improved customer engagement.”

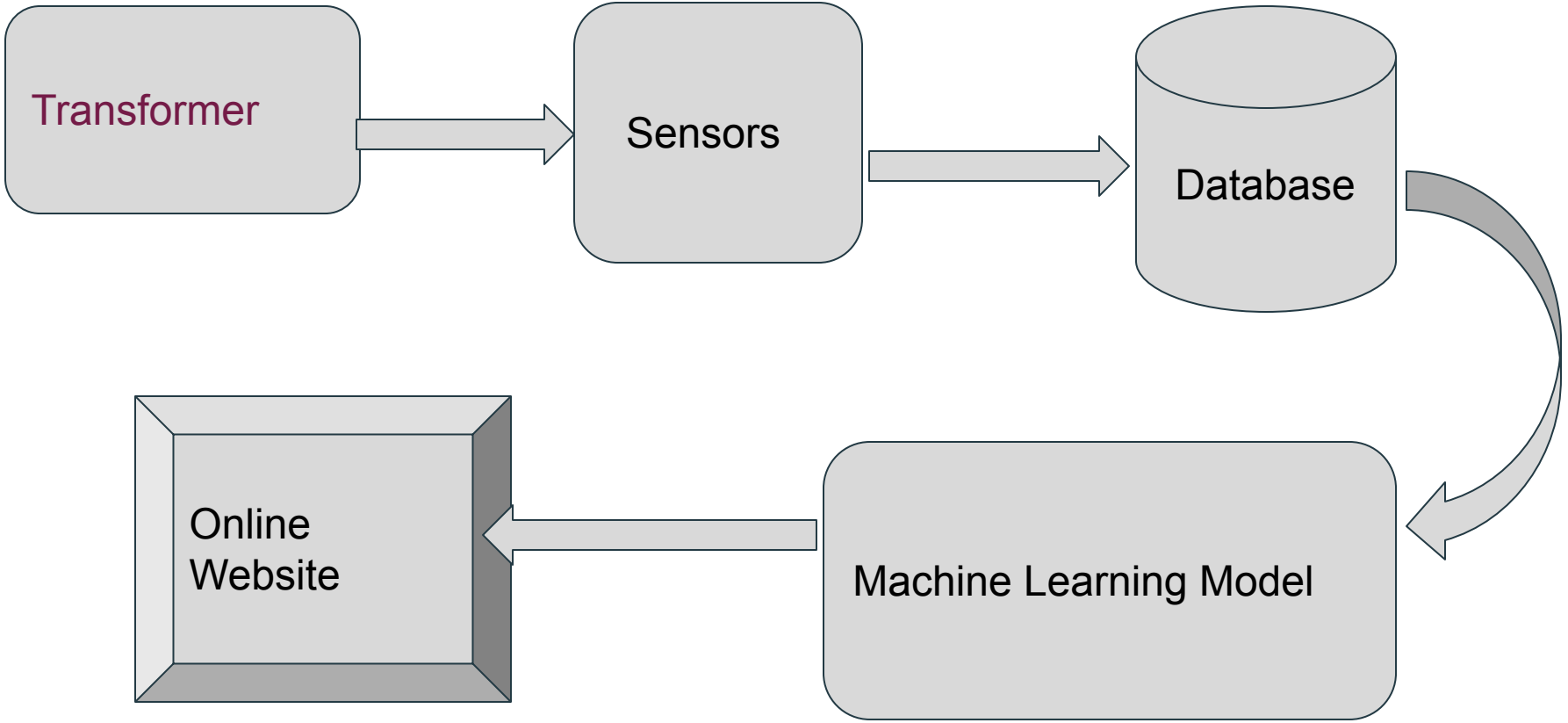


Our Online Dashboard

1)Our Online Website will contain the Current Electricity Status of a particular Customer when user logins

2)In Admin Panel You Can Handle and See the real time Data Through Sensors and take the required Actions if Needed .

3)Every User Can See the Status DP present in their area .


Transformer
Sensors
Database
Online
Website
Machine Learning Model

Commercial Benifits

1)amount require to Construct a one Double structure= 6 to 7 Lakhs

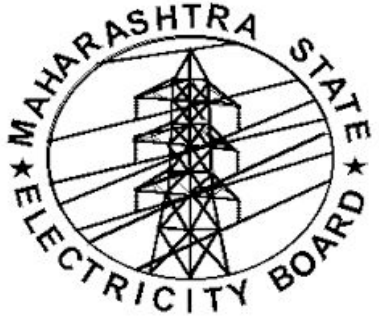
2)In india per 100 transformers there will a loss of 1 crore

3)in foregin country loss is upto 14 lakhs

4)we are wasting money about 80%

Our Target Customers

Cost: 6,00,00



ANY QUESTIONS??


Thank You