DOCUMENTATION OF PIPELINE LEAK DETECTION USING EDGE DATA ANALYTICS

Components required for the project

1.Arduino nano BLE sense
2.Water Pressure Sensor

Libraries needed for the project

for Arduino
- TensorFlowLite.h
- ArduinoBLE.h

for ML model Creation
•Tensorflow
•Keras
•Numpy
•Pandas
•Matplotlib
•Math

Procedure

Sensor Connectivity

•Check each sensor module's functionality first.
•Combine each sensor codes and display the values in serial monitor

Data Collection

1.Hardware setup:-Sensor Connectivity
2.Recording /Save data :-

•upload the sensor connectivity code to the hardware module
•connect serially through python code and save the datas to csv file

Machine Learning Model creation

•Imports and Environment setup
•Data Preparation
•Model Training
•Model Evaluation
•Converting Models
•Compare Model Performance
•Prediction with Quantization
•Generate a Tensorflowlite for microcontrollers model

Deployment on Arduino board
•Adding model Tflite micro to arduino code
•Live Testing