**IOT BASED INTEGRATED SYSTEM TO UNIFY DATA**

* OT systems encompass a wide range of technology that interacts with the physical environment to perform monitoring and control tasks. This includes Industrial Control Systems (ICS) like SCADA (Supervisory Control and Data Acquisition) systems, Distributed Control Systems (DCS), and Programmable Logic Controllers (PLCs).
* Designing an IoT-based integrated system to unify data from various OT systems involves several key components and steps:
* *IMPLEMENTATION:*
* **Data Collection**:
  + Install sensors on machinery to monitor parameters like temperature, vibration, and energy consumption.
  + Use PLCs to control the machinery and collect data.
* **Edge Processing**:
  + Deploy edge gateways to aggregate data from sensors and PLCs.
  + Perform initial processing (e.g., filtering noise, detecting anomalies) on the edge.
* **Data Transmission**:
  + Use MQTT protocol to securely transmit data from edge gateways to the IoT platform.
* **Data Aggregation and Storage**:
  + Aggregate data on the IoT platform (e.g., AWS IoT) and store it in a cloud database.
* **Data Processing and Analytics**:
  + Apply machine learning models to predict machinery failures and optimize maintenance schedules.
  + Analyse production data to identify bottlenecks and improve efficiency.
* **Integration with OT Systems**:
  + Use APIs to integrate the IoT platform with existing SCADA and DCS systems.
  + Enable seamless data exchange and unified monitoring.
* **User Interface**:
  + Develop a web dashboard for real-time monitoring of machinery health and production metrics.
  + Provide mobile apps for maintenance personnel to receive alerts and access