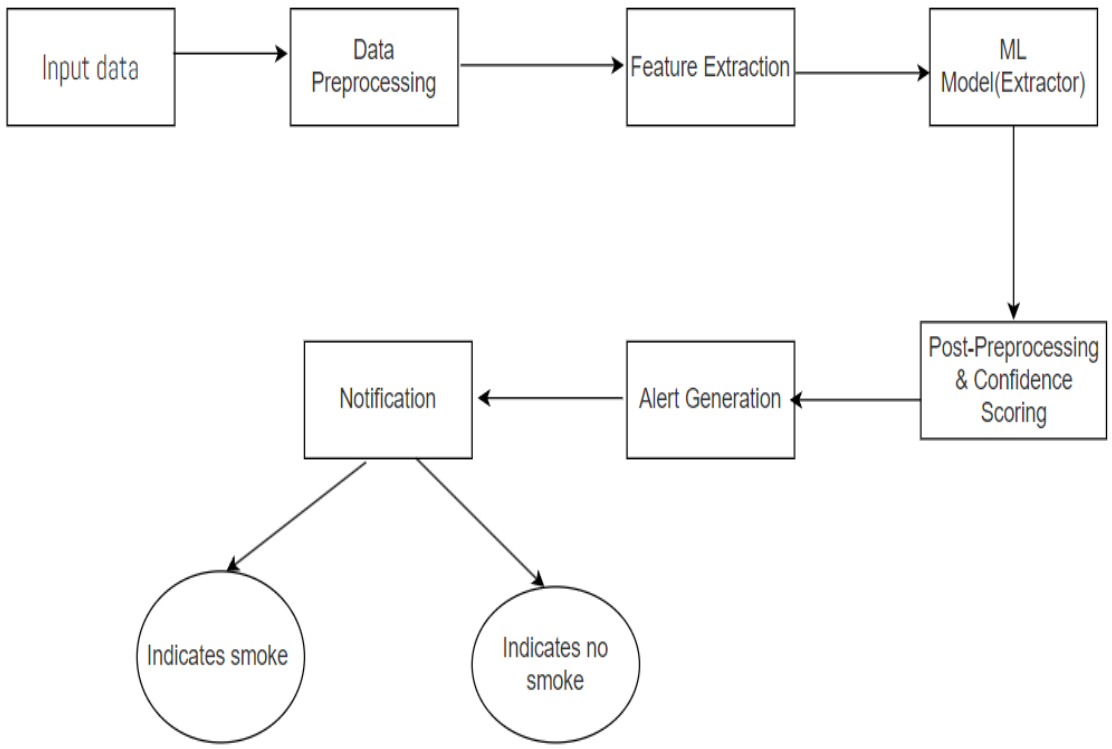
Project Design Phase-II

Data Flow Diagram

A Data Flow Diagram (DFD) is a visual representation of how data flows within a system. In the case of smoke prediction detection using machine learning (ML), the DFD would outline the flow of data from input sources to the ML model, and then to the output or prediction result.

Below is a **simplified DFD** for a smoke prediction detection system using ML:



1. Input Data:
    - Raw data from various sources (e.g., sensors, cameras) providing information related to smoke detection.
2. Data Preprocessing:
    - Tasks like cleaning, formatting, and transforming data to make it suitable for the ML model. This step may also include handling missing values or outliers.
3. Feature Extraction:
    - Extracting relevant features from the pre-processed data, such as colour intensity, texture, shape characteristics, etc., to enhance the model's ability to detect smoke.
4. ML Model (Smoke Detector):
    - The ML model takes the pre-processed data and extracted features as input. It uses this information to make predictions about the presence of smoke. The model has been trained on a dataset containing labelled examples of smoke/no-smoke scenarios.
5. Post-processing & Confidence Scoring:
    - After the ML model makes a prediction, post-processing steps may be applied. This could involve additional checks or calculations to improve the accuracy or confidence level of the prediction.
6. Alert Generation:
    - Depending on the confidence level of the prediction, an alert may be generated to indicate a potential smoke event. This could include actions like sounding an alarm, triggering automated responses, or other relevant actions.
7. Notification:

- This step involves notifying relevant parties or systems about the smoke prediction. It could be sending an alert to a monitoring station, triggering an automated response, or notifying emergency services if necessary.

This DFD provides a detailed view of the process involved in a smoke prediction detection system using machine learning.