Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	21 November 2023
Team ID	591975
Project Name	Project – Crime vision
Maximum Marks	4 Marks

Technical Architecture:

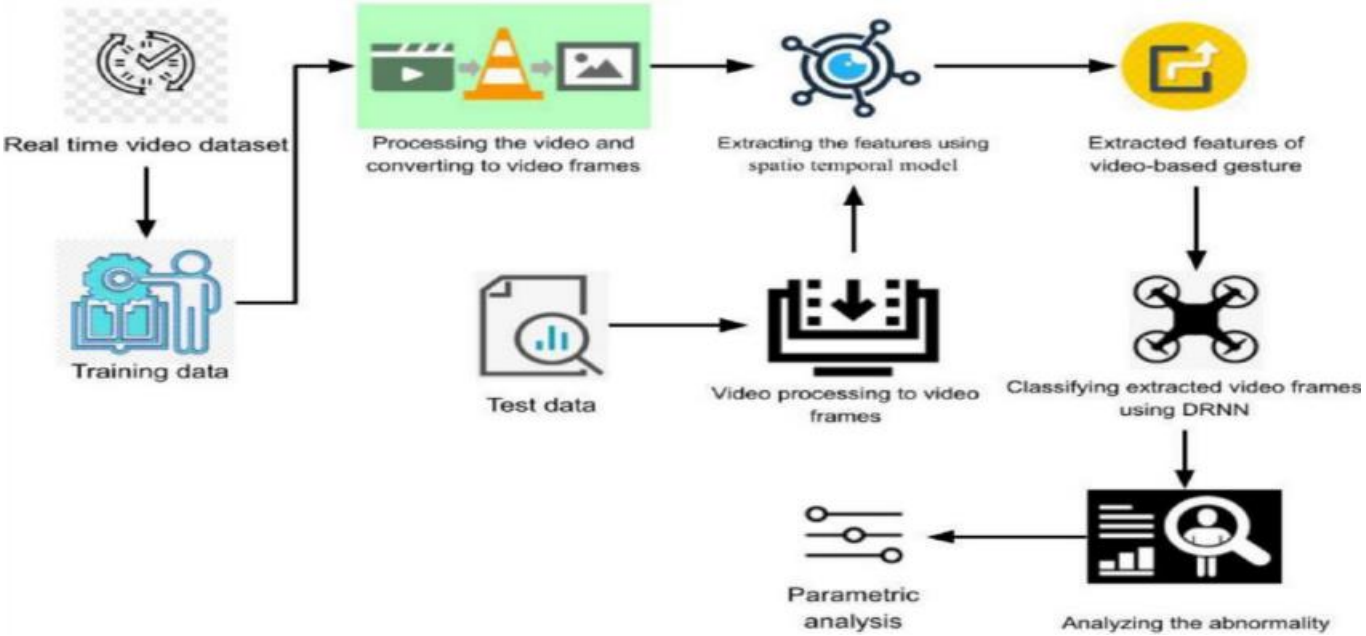

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g.,Web UI, etc.	HTML, CSS, JavaScript
2.	Application Logic-1 (Data Collection and Preprocessing)	1) Utilize IP cameras as data sources to capture images 2) Preprocess data to ensure consistency.	Python
3.	Application Logic-2 (Anomaly Detection and Alert Generation)	1) Use pre-trained deep learning models for object detection like CNN. 2) Utilize facial recognition models for identifying individuals. 3) Generate real-time alerts when anomalies are detected	TensorFlow, deep Learning Frameworks
4.	Application Logic-3 (User Interface, Logging, and Monitoring)	1) Update the web-based user interface to make it user-friendly. 2) Maintain a database to store information about detected anomalies. 3) Implement cloud clusters for scalability.	Flask
5.	Database	To store the data (Images of crime scenes)	MySQL, Kaggle
6.	File Storage	Storing dataset	Local Filesystem
7.	External API-1	Not used	NA
8.	External API-2	Not used	NA
9.	Machine Learning Model	Convolutional neural networks	Object Recognition Model
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	1. TensorFlow or PyTorch Integration 2. OpenCV Integration 3. Flask Web Framework	TensorFlow,Pytorch,Flask
2.	Security Implementations	1. SSL/TLS Encryption 2. Authentication and Authorization 3. Secure File Uploads	SSL/TLS
3.	Scalable Architecture	1. Microservices Architecture 2. Load Balancing	Python with Deep Learning
4.	Availability	1. High Availability Setup 2. Redundancy 3. Monitoring and logging	Use multiple servers and distribute traffic Employ failover mechanisms
5.	Performance	1. Optimized Deep Learning Model 2. Caching Mechanisms 3. Asynchronous Processing	Model optimization techniques specific to the chosen deep learning framework