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

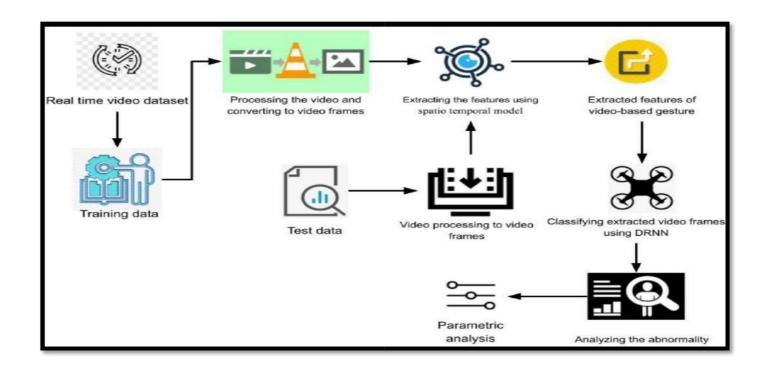| Date	03 October 2022
Team ID	Team-592314
Project Name	Project - Crime Vision: Advanced Crime Classification with Deep Learning
Maximum Marks	4 Marks

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, Python etc.
2.	Application Logic-1 (Data Collection and Preprocessing)	1) Utilize IP cameras or video streams as data sources. 2) Preprocess video frames to ensure consistency.	Python Libraries Like OpenCV
3.	Application Logic-2 (Anomaly Detection and Alert Generation)	1) Employ pre-trained deep learning models for object detection. 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 display video feeds with anomaly indicators. 2) Maintain a database to store information about detected anomalies, including timestamps and descriptions. 3) Implement cloud or server clusters for scalability.	Flask, load balancing
5.	Database	Varchar, Int, Float etc.	Kaggle
6.	File Storage	File storage requirements	Kaggle, RAM, ROM
7.	External API-1	NA	NA.
8.	External API-2	NA	NA
9.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration Cloud Server Configuration	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Visual Analysis	The project primarily focuses on the analysis of images and video footage from crime scenes, relying on visual data for crime identification.	Python with Deep Learning
2.	Pattern Recognition	The system learns to recognize intricate patterns and features associated with different types of crimes, enabling accurate classification.	Python with Deep Learning
3.	Surveillance and Prevention	It can analyze large volumes of surveillance footage to identify trends and patterns, enabling proactive crime prevention strategies.	Python with Deep Learning
4.	Data Privacy and Security	The project places a strong emphasis on protecting sensitive data, ensuring compliance with privacy regulations and standards.	Python with Deep Learning
5.	Adaptive and Evolving	The system can potentially improve over time through feedback loops and continuous model training, adapting to new patterns and emerging crime trends.	Python with Deep Learning
6.	Ethical Considerations	The project acknowledges and addresses ethical and privacy concerns, ensuring responsible use of technology in law enforcement.	Python with Deep Learning