

**Project Design Phase-I**  
**Solution Architecture**

Date	02 November 2023
Team ID	Team - 592720
Project Name	Arming Against Violence - YOLO-Based Weapon Detection
Maximum Marks	4 Marks

**Solution Architecture:**

It optimizes the weapon detection process by leveraging YOLO Object Detection for real-time image-based classification. YOLO's speed is a standout feature, processing entire images in a single pass through the neural network, making it ideal for applications where immediate detection and response are paramount. Moreover, YOLO offers a commendable balance of speed and accuracy, even when dealing with small or partially obscured objects, ensuring reliable performance in real-world scenarios. Its active developer community ensures ongoing improvements and adaptability to new challenges, providing longevity to the system.

Our solution leverages Computer Vision (Object Detection Algorithms like YOLO) to address the weapon detection problem effectively.

- Data Collection and Annotation
- Data Preprocessing
- Model Selection and Training
- Model Evaluation
- Model Export and Deployment
- Integration with Cameras or Video Streams

## Solution Architecture Diagram

