Data Collection and Preprocessing Phase

Date	1 Oct 2024
Team ID	739648
Project Title	GuardianEye:YOLO-Based Smart Helmet Detection System For Enhanced Safety In Real-Time
Maximum Marks	2 Marks

Data Collection Plan & Raw Data Sources Identification Template

A YOLOv5-based smart helmet detection system enhances safety by identifying helmet usage in real-time, utilizing high-resolution video streams from surveillance cameras as raw data. The data collection plan involves capturing diverse environmental conditions and annotating helmet and non-helmet instances for robust model training.

Data Collection Plan Template

Section	Description
Project Overview	A smart helmet detection system leveraging YOLOv5 to identify helmet compliance in real-time, aimed at enhancing workplace safety and reducing accidents.

Data collection Plan	Video footage is collected from various sources, including CCTV systems, mobile cameras, and drones, under diverse lighting and environmental conditions. Annotation of helmet and non-helmet usage is performed to train the YOLOv5 model.
Raw Data Sources Identified	- Surveillance cameras (CCTV) from construction sites, traffic monitoring systems, and factories. - Mobile recordings from smartphones. - Drone-captured aerial views of workspaces. - Publicly available helmet detection datasets

Raw Data Sources Template

Source Name	Description	Location/URL	Format	Size	Access Permissions
Dataset 1	Collected from Kaagle	https://www.kaggle.com/datasets/andrewmvd/helmet-detection	JPG , Text	3.09 GB	Public

Dataset 2	Collected from roboflow	!pip install roboflow from roboflow import Roboflow rf = Roboflow(api_key="aGEhgGkUV19vTP7EKVGr") project = rf.workspace("helmet-detection-system-for-enhanced-safety-in-realtime-9kmwx").project("hard-hat-sample-tpt0x") version = project.version(1) dataset = version.download("yolov5")	JPG, Text	2.5 GB	Private (with access)