Nagar Yuwak Shikshan Sanstha's
Yeshwantrao Chavan College of Engineering
(An Autonomous Institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)
Hingna Road, Wanadongri, Nagpur - 441 110
NAAC A++
Ph.: 07104-237919, 234623, 329249, 329250 Fax: 07104-232376, Website: www.ycce.edu

Department of Computer Technology

Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

Session 2025-2026

Vision: Dream of where you want.	**Mission:** Means to achieve Vision

Program Educational Objectives of the program (PEO): (broad statements that describe the professional and career accomplishments)

PEO1	**Preparation**	**P: Preparation**	**Pep-CL abbreviation pronounce as Pep-si-lL easy to recall**
PEO2	**Core Competence**	**E: Environment (Learning Environment)**	
PEO3	**Breadth**	**P: Professionalism**	
PEO4	**Professionalism**	**C: Core Competence**	
PEO5	**Learning Environment**	**L: Breadth (Learning in diverse areas)**	

Program Outcomes (PO): (statements that describe what a student should be able to do and know by the end of a program)

Keywords of POs:
Engineering knowledge, Problem analysis, Design/development of solutions, Conduct Investigations of Complex Problems, Engineering Tool Usage, The Engineer and The World, Ethics, Individual and Collaborative Team work, Communication, Project Management and Finance, Life-Long Learning

PSO Keywords: Cutting edge technologies, Research

"I am an engineer, and I know how to apply engineering knowledge to investigate, analyse and design solutions to complex problems using tools for entire world following all ethics in a collaborative way with proper management skills throughout my life." *to contribute to the development of cutting-edge technologies and Research*.

Integrity: I will adhere to the Laboratory Code of Conduct and ethics in its entirety.

Name and Signature of Student and Date
(Signature and Date in Handwritten)

Nikhil Gourkar

Nagar Yuwak Shikshan Sanstha's
Yeshwantrao Chavan College of Engineering
(An Autonomous Institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)
Hingna Road, Wanadongri, Nagpur - 441 110
NAAC A++
Ph.: 07104-237919, 234623, 329249, 329250 Fax: 07104-232376, Website: www.ycce.edu
Department of Computer Technology

Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

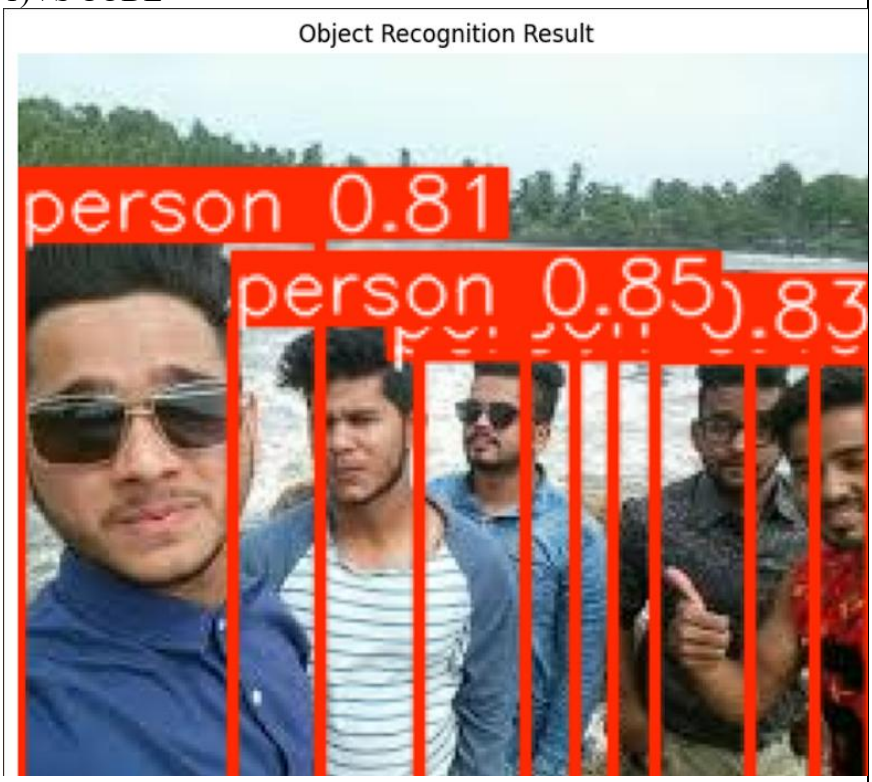
Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

Session	**2025-26 (ODD)**	**Course Name**	**Computer vision Lab**
Semester	**5**	**Course Code**	**CT**
Roll No	**59**	**Name of Student**	**Nikhil Gourkar**

Practical Number	**8**
Course Outcome	**Upon successful completion of the course the students will be able to** 1. Apply image enhancement and smoothing techniques to improve image quality for further analysis. 2. Extract meaningful features from images using descriptors such as HOG and SIFT. 3. Implement and evaluate modern object detection methods including YOLO and R-CNN. 4. Analyze and develop solutions for motion estimation, object recognition, and facial expression recognition using classical and learning-based methods.
Aim	Implement Object recognition.
Problem Definition	The main objective of this project is to implement an object recognition system that can automatically detect and classify objects present in a digital image using computer vision and deep learning techniques.
Theory (100 words)	• Object recognition is a fundamental task in the field of computer vision and artificial intelligence that focuses on identifying and classifying objects present within an image or video. It enables computers to interpret and understand the visual world in a manner similar to human perception. The core challenge lies in teaching machines to recognize objects under varying conditions such as changes in lighting, scale, orientation, occlusion, and background clutter. • In traditional computer vision, object recognition was performed using handcrafted features such as SIFT (Scale-Invariant Feature Transform), SURF (Speeded-Up Robust Features), and HOG (Histogram of Oriented Gradients).

Procedure and Execution (100 Words)	Algorithm: • The input image is taken by the system. • Image is resized and normalized for processing. • The image is divided into small grids. • Each grid cell predicts objects within its area. • Convolutional Neural Network (CNN) extracts features from the image. • The algorithm predicts bounding boxes around detected objects. • It calculates confidence scores for each box. • The model classifies objects into predefined categories (e.g., person, car, dog). • Non-Maximum Suppression (NMS) removes duplicate overlapping boxes. • The final image is displayed with labeled bounding boxes and confidence levels.
	Code: from ultralytics import YOLO import cv2 model = YOLO('yolov8m.pt') img = cv2.imread('imo.jpg') img = cv2.resize(img, (1280, 720)) results = model(img, conf=0.6, iou=0.5) annotated_img = results[0].plot() cv2.imshow('Improved YOLOv8 Detection', annotated_img)

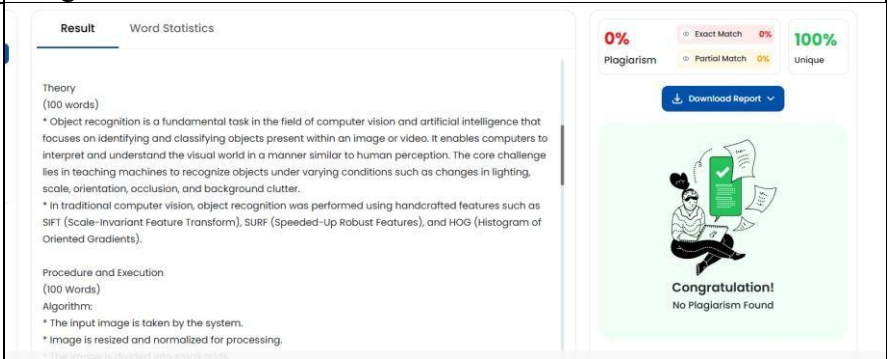
	Output: 1)VS CODE 
Output Analysis	The image shows a golden retriever dog running outdoors on grass. The dog is detected and enclosed in a red bounding box with the label "dog" and a confidence score of 1.00, indicating the object detection model has identified the dog with full confidence. The background is blurred trees and a building, focusing clearly on the running dog. This is output from RCNN algo impementataion.
Link of student Github profile where lab assignment has	https://github.com/Nikhil07Gourkar/CV_Lab

Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

been uploaded	
Conclusion	The conclusion, based on the detected image, is that the object detection algorithm efficiently and accurately identified the presence and position of a dog in the scene, demonstrating high reliability and effectiveness for practical use in similar image recognition tasks.
Plag Report (Similarity index < 12%)	
Date	06/11/2025