List of Projects carried out under the Centre for Computer Vision Research

Project Title	Automatic detection of wild animals and reptiles by surveillance cameras
Project Description	For the detection of wild animals, deep learning models such as VGG16 (16 CNN layers) are used. The frames from CCTV are compared to the model trained to ensure the existence of wild animals. If any wild animal is detected in the frames, an alert is immediately initiated with frames along with a timestamp. Proposed system was found to be effective with an average precision score of 0.743.
Project Mentor	Shri T Shankar
Faculty Guide	Dr. Azra Nasreen
Team Members	Harish A Jartarghar, Kruthi M N, Karunatharaka B
Status of the Project	Completed
Paper Publication Details	Under Review

Project Title	Automatic detection of garbage and overflowing street bins in videos
Project Description	Deep learning based SSD (Single Shot Detector) along with backbone VGG16 was trained on a custom dataset resulting in the mAP of around 69.2%. The frames extracted from the video sequences are checked for the overflowing of garbage from the bins and are classified accordingly with the help of creation of bounding boxes. The proposed system would help in automating the overflowing garbage detection process and by coordinating it with surveillance systems, a state of the art real time monitoring system can be obtained that would ease out the work of municipal departments and concerned authorities.
Project Mentor	Shri T Shankar
Faculty Guide	Dr. Azra Nasreen
Team Members	Akhil Dua, Ayush Dwivedi, Dave Shivangi Devendra
Status of the Project	Completed
Paper Publication Details	-

Project Title	Human identification using GAIT analysis
Project Description	Model to identify human using gait images based on principal component analysis algorithm and K nearest neighbor classifier is implemented. Principal component analysis is used to extract gait features. K nearest neighbor classifier is used to compute human id. Experimental analyses on CASIA A dataset show a significant performance gain in terms of accuracy.
Project Mentor	Dr. Surbhi Mathur, National Forensic Sciences University, Gujarat
Faculty Guide	Dr. Azra Nasreen
Team Members	Pragathi B C, Kruthika P, Shiva Reddy, Shibi K R
Status of the Project	Completed
Paper Publication Details	-

Project Title	Fire and Smoke Detection
Project Description	The Fire and Smoke detection project addresses the significant hazards posed by fires and the limitations of traditional sensor-based fire detection systems. Proposed an innovative ensemble model consisting of two YOLOv8 models—one focused on detecting fire and smoke, and the other specifically designed for smoke detection. This dual-model approach aims to enhance the accuracy of real-time fire and smoke detection in CCTV surveillance systems. Advanced image preprocessing methods such as super resolution and the Lucy-Richardson algorithm are employed to enhance input video frames. Proposed models obtained a precision and recall of 0.98 and 0.99 respectively.
Project Mentor	Shri. T Shankar, Head-Research and Projects, Center for Computer Vision Research, RVCE.
Faculty Guide	Dr. Mohana, Assistant Professor, CSE(Cyber Security),RVCE

Team Members	Anshula Aithal, Kruthi U Shetty, Rida Kutty Javed
Status of the Project	**Ongoing**
Paper Publication Details	Anshula Aithal, Kruthi U Shetty, Rida Kutty Javed, Mohana, T Shankar, Ramakanth Kumar P, K. Sreelakshmi ***"Real Time Fire and Smoke Detection in Surveillance Videos using Deep Learning"*** 6th International conference on Computational Intelligence in Pattern Recognition (CIPR 2024). Lecture Notes in Networks and Systems, Springer LNNS Series. https://www.cipr.in/index.html