

# EdgeFleet.Ai AI/ML Assessmet

Goal: Build a complete computer vision system to detect and track a cricket ball in videos recorded from a single, fixed camera.

## Your System Should

- Detect the cricket ball centroid in each frame where it is visible.
- Output a per-frame annotation file (CSV or JSON) containing: `frame_index`, `x_centroid`, `y_centroid`, `visibility_flag`.
- Generate a processed video with the ball trajectory overlayed.
- Provide fully reproducible code and scripts for training, inference, and evaluation.

## Input / Output Requirements

### Input:

- Cricket videos from a single static camera.

### Output:

- Processed video with the ball centroid and trajectory overlayed.
- Annotation file with per-frame detections.

## Submission Instructions

Your public GitHub repository must include:

- All code for training, inference, tracking.
- A concise README with setup steps, dependencies, and instructions for running your pipeline.
- Annotated files and example annotated frames.
- Final processed videos (present in the below link) with trajectory overlay.
- Hyperparameter calibration results (if used).
- (Optional) A public WandB or TensorBoard link (if training a neural network).
- Model file required to replicate your results.

- A detailed report summarizing modelling decisions, fallback logic, assumptions made, and example outputs. Document how you fixed issues and improved model performance.

## Repository Structure

```
code/                # inference, model/training, tracking, utilities
annotations/         # CSV annotation files
results/             # processed videos with overlays
README.md
requirements.txt or environment.yml
report.pdf
```

## Example Output Formats

### Annotation File (CSV):

```
frame,x,y,visible
0,512.3,298.1,1
1,518.7,305.4,1
2,-1,-1,0
```

**Processed Output:** MP4 video with centroid + trajectory overlay.

## Dataset for Testing

Candidates are expected to test and submit their outputs for the Videos Present in the drive.

Dataset link: <https://drive.google.com/file/d/1hnaGuqGuMXaFKI5fhfy8gatzCH-6iMcJ/view?usp=sharing>

## Submission Deadline

7-12-2025, 10:00 P.M.