

Component	Technology	Accuracy_target	Processing
Player Detection	YOLOv8	90%+	30 FPS
Ball Detection	YOLOv8 + Custom tracking	85%+	30 FPS
Jersey Recognition	Tesseract OCR + EasyOCR	70%+	10 FPS
Multi-Object Tracking	ByteTrack	85%+	30 FPS
Event Detection - Passes	Rule-based + ML	75%+	Real-time
Event Detection - Goals	Rule-based	95%+	Real-time
Event Detection - Saves	Rule-based	70%+	Real-time
Event Detection - Juggling	Pattern recognition	60%+	Real-time

### Input

Video frames

Video frames

Player crops

Detections per frame

Player positions + ball trajectory

Ball position + goal area

Goalkeeper position + ball movement

Ball vertical movement pattern

### Output

Player bounding boxes

Ball position + trajectory

Jersey numbers

Tracked objects with IDs

Pass events with timestamps

Goal events

Save events

Juggling events

### Dependencies

ultralytics, opencv-python

ultralytics, supervision

pytesseract, easyocr

supervision

numpy, scipy

numpy

numpy

numpy