**Instructions to follow**

**1. Application Initialization**

* Upon launching, the app:
  + Loads the **YOLOv8 model** (yolov8n.pt).
  + Opens the **video feed** from the default camera (video source=0).
  + Initializes and displays a **responsive professional UI** with:
    - Control buttons
    - Live video preview
    - Worker status, alerts, and logs

**2. Prepare for Monitoring**

* Ensure workers are **visible in camera view**.
* Click **▶ START MONITORING** to begin the detection process.
  + The system:
    - Clears previous logs and alerts
    - Starts analysing live frames using YOLOv8
    - Initializes internal tracking variables
    - Optionally starts video recording (if self. record video is True)

**3. Real-time Monitoring Process**

* While running:
  + YOLOv8 detects persons
  + System tracks individual worker states:
    - **Working** (movement/activity detected)
    - **Idle** (still but present for > IDLE\_THRESHOLD seconds)
    - **Absent** (not detected in view)
  + Updates:
    - **Live count** of workers
    - **Status panel** for each worker
    - **Logs panel** for activities
    - **Alerts panel** if a worker is idle too long
* **Decision Logic**

| **Condition** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **State** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Body + hand movement detected |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Working |
| Stationary pose for X seconds |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Idle |
| Worker not detected for Y seconds |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Absent |

**4. Customize Settings (Optional)**

* Click **SETTINGS** (Function yet to be implemented) to:
  + Adjust motion sensitivity
  + Idle and alert thresholds
  + Change video source or resolution

**5. Stop Monitoring**

* Click **STOP MONITORING** to stop:
  + YOLO-based detection
  + Logging and video capture
  + Threaded processing

**6. Export Report**

* Click **EXPORT REPORT** to:
  + Generate a CSV report from activity\_log.csv
  + Save it to the /reports folder with timestamped filename

**7. Exit the Application**

* Simply close the window or press Ctrl+C in terminal.
* Video stream and threads will stop, and resources will be released.