**WORKPLACE SAFETY AND COMPLIANCE MONITORING**

**BUISNESS PROBLEM:**

To minimize safety hazards and regulatory fines, automated monitoring is needed. To maximize efficiency, it replaces manual reporting prone to delays and errors.

**BUISNESS SOLUTION:**

* Uses computer vision and deep learning to detect **PPE violations.**
* Monitors worker posture to prevent ergonomic hazards.
* Provides real-time alerts and compliance reports.
* Ensures regulatory adherence and enhances workplace safety.

**Feature Engineering:** PPE classification, pose estimation, and risk assessment.

**Model 1 – PPE Detection** : YOLO (v8)

**Model 2 – Pose Estimation** : MediaPipe

**TECHNOLOGY STACK:**

* Programming Languages: Python
* Libraries: Ultralytics,opencv, mediapipe,PyQt5,TensorFlow,streamlit
* Software/IDE: Spyder,Google Colab
* Database: PostgreSQL
* Version Control: GitHub
* Other Tools: roboflow

**BUISNESS BENEFITS:**

* Improved Workplace Safety
* Regulatory Compliance
* Operational Efficiency
* Cost Reduction
* Real-time Monitoring
* Scalability