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