

# Birlasoft's

INTELLIVISION

**birlasoft**



# IntelliVision: A Platform for EHS & Safe Workplace Environment.

Birlasoft has ready solution accelerators 'intelliVision™' built on Microsoft Azure Custom Vision Platform, which are being leveraged for work-place safety Applications. This platform provides capabilities for EHS and workplace safety initiative. This solution has several safety measures, like Facial Recognition, Emotion Recognition, Object Quality Analysis, Quality Control, Zone/ Event Detection & Organizing Visual Information.



## CHALLENGES

In many workplace safety systems, the latency of cloud-based systems is not acceptable

Intermittent network issue can add to the downtime of the system.

24\*7 availability of the system is the primary requirement.

The bandwidth & cloud data sharing should be limited.

## IDEAL SOLUTION

Video & Image Processing at the edge & only events to be shared with cloud. This will reduce the bandwidth consumption of the system.

Reliable infrastructure for easy provisioning , updates, monitoring & training of AI ML modules.

## DESIRED OUTCOMES

This will help in reducing the network latency & will help to achieve a latency less than one second.

Eliminates the intermittent network dependency.

Edge based system ensures high availability & reduces the downtime.



### Facial recognition

- Facial recognition
- Employee Identification
- Thunell Image
- Remote Configure & Control
- Alerts | Alarms | Notifications



### Quality control (QC)

- Automated Visual Inspection
- Checking for surface defects, foreign materials, discoloration, absence of components, etc.



### Emotion recognition

- Emotion recognition
- Employee Identification
- Employee Monitoring & Tracking
- Remote Configure & Control



### Event detection

- Identifying behavior anomalies and alarms in surveillance videos, counting people traversing a passage



### Grading and sorting

- Object quality analysis for streamlined classifying and sorting



### Organizing visual information

- Indexing visual databases.
- Automatic Grouping
- Automatic Tagging

# Birlasoft's IntelliVision Solution

To ensure the workplace safety with computer Vision – AI. Birlasoft's IntelliVision helps in improving the workplace environment by ensuring Workplace Safety, Activity Recognition, Object Recognition, and Workforce Safety.

## WORKPLACE SAFETY

- Fork-lift Movement Monitoring
- Prevent Accidents Human-Machine Collision
- Monitor Unauthorized and Unexpected Access Entry into the Workplace Area
- Elevated Body Temperature & Social Distance Compliance Monitoring

## ACTIVITY RECOGNITION

- Activities of the workforce such as bending, lifting, pushing, pulling, moving, sitting, etc.
- Safety Deviations such as –
  - Incorrect use of PPE
  - Unsafe Positioning Under suspended loads
  - exclusion areas in the drill floor, obstruction of escape routes

## OBJECT RECOGNITION

- Multi-Object Detection
- Counting & Stock Monitoring
- Identification of the correct use of personal protective equipment (PPE) such as: helmet, overalls, gloves, goggles, ear protector, boots and life jacket as applicable.

## WORKFORCE SAFETY

- Face Detection | Emotion Detection
- Workforce Safety and Compliance Monitoring
- Identify Employee without hardhats, visibility vests, work goggles, etc.
- Real-time Notification/Alert & Alarms
- Lone worker Safety Monitoring

# Birlasoft 's IntelliVision + Custom Vision + Azure IoT Edge + IoT Hubs + Event Hubs

- Microsoft IoT Edge provides a very reliable & easy to use edge management system.
- Using custom vision, development of model is deeply simplified.
- Using IoT hubs & event hubs the communication between device & cloud is deeply simplified.



Zone



Face



Incorrect use of PPE



Remote Monitoring



Fire Detection



Identify Emp.

## Model Training + Custom Vision

Custom Vision offers development of highly accurate & reliable models, quickly & easily. Using Microsoft suggested hardware kits, image processing can be done in near real time.

## IoT Edge Management + Azure IoT Edge

IoT Edge ensures edge container provisioning, updates, monitoring & diagnostics. This helps in real time monitoring, thus reducing the potential work hazard risks & ensures safety.

## Event Communication + IoT Hubs & Event Hubs.

The need for additional solution for device communication is eliminated & a very real time communication can be achieved by leveraging IoT Hubs & Event Hubs.

# An offshore petroleum drilling company in the petroleum industry used IntelliVision for a safer working environment.

An Offshore drilling company in the petroleum industry needs a solution to provide a safer working environment for its workers. The solution should offer automated analysis of all the safety measures and movements of its employees in the local environment. It should be a continuously evolving & adaptive solution that will evolve inline with the dynamic industry scenarios. Platform that provides capabilities for EHS and workplace safety initiative.



## BUSINESS REQUIREMENTS

- An offshore drilling company in the petroleum industry, needs a CCTV & video analytics solution, in order to foster a safer working environment.
- Validation of hardware and software requirements for an HSE supervisory system for application in marine probes.
- The system must enable automated analysis of local movement.
- Solution should be flexible and allow enhancements in order to adapt to the ever-evolving safety protocol

## OBJECTIVES OF THE SOLUTION

- To track local movement and make the workplace safe by issuing hazard warnings
- IOT & Embedded AI Based solution to automate analysis through consolidation of deviations by frequency, time and deviation type to optimize response time by leveraging real time data
- To offer biometric services
- Cover security requirements via authorized access to data

## DESIRED OUTCOMES

- To Monitor Correct Usage of Safety Gear (incl. Helmet, PPE Vests, Gloves, Goggles, overalls, Ear Protector, Life jackets ) by the Working Personals in applicable scenarios.
- To Identify any Personal entering into an excluded zone, blockages on major pathways and escape routes, Virtually Mark Zones for Forklifts and Identify Personal Entering into Forklift Zones To Identify is Personal is Standing below heavy suspended Loads.
- To Send the Alerts to Petrobras' RTO System

# Contact us-

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