ABILITY

Using AI to Make Construction Site Safer

- Personal Protection Equipment
- Face recognition
- Human Detection
- Virtual Fence
- Automatic Number Plate Recognition
- Vehicle Identification

Using AI to Make Construction Site Safer Video

Introduction

The constantly changing environment of a construction site presents various hazards that put the lives of workers in danger when emergencies happen. Maintaining a safe working environment is crucial and also the key to productivity.

Ability provides construction site solution which is designed to minimize the exposure to certain risks of injury or illness, as well as the damage caused by those hazards in the event of a mishap.

Challenges

Safety is a main concern for the construction industry because of the high rates of accidents and casualties on construction sites. Personal Protective Equipment (PPE) is a basic requirement of major safety regulations that protect workers from dangers and accidents. However, workers may neglect to wear the required PPE when entering the site. This would result in the increase of the potential risk for accidents.

Ability provides PPE detection and Virtual Fence. They incorporate many features that help cope with health and safety challenges faced by the industry – real-time identification and detection of construction workers and their PPE. Factors such as changes in illumination, the intensity of lighting contrast, the complexity of activities and the variety of personal protective equipment (PPE) designs and colors in construction scenes all contribute to the difficulty of identification and detection with computer vision.

The security system must operate reliably on construction sites even in severe weather conditions. Ability' s AI-Vue cameras comply with IP67, which protects against the ingress of dust and immersion in water, ensuring reliable operation on construction sites.

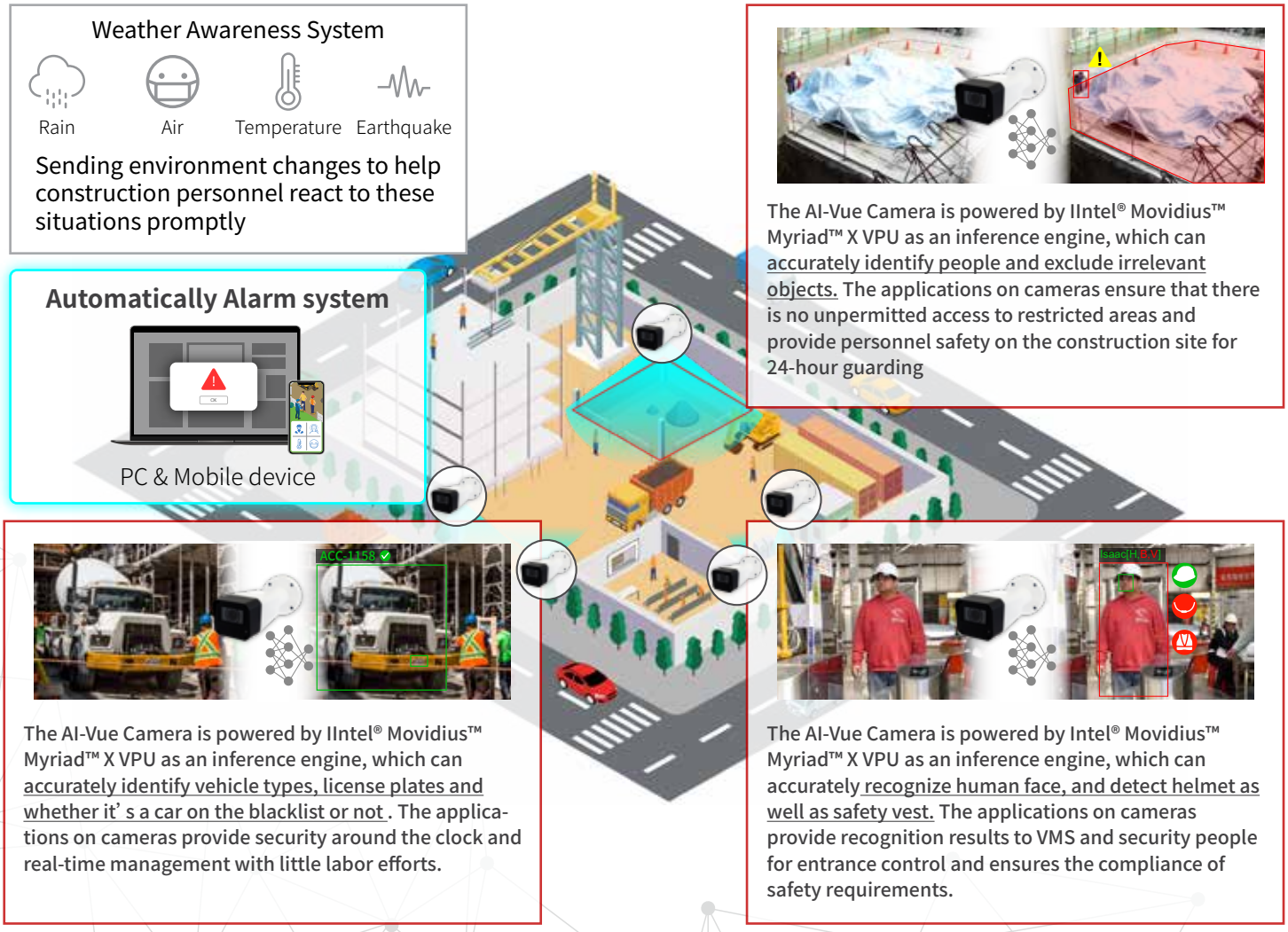
Solution

Personal Protective Equipment (PPE) Detection is an industry-proven solution aiming to improve site safety and minimize hazardous conditions. PPE can detect hard hats, vests, and buckles and be used in combination with access control to check workers' gear at the entrance to prevent accidents and enforce compliance with occupational safety regulations.

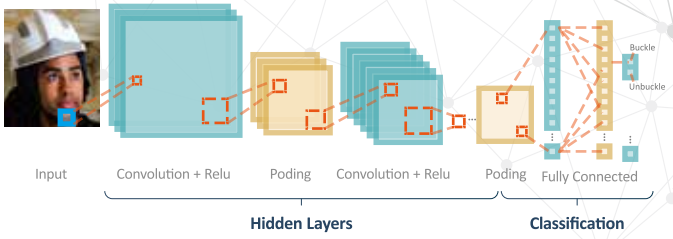
For property protection and perimeter safety, we offer Virtual Fence. Not only can the Virtual Fence keep workers from crossing dangerous area, when coupled with iDaka's notification backend server, it also alerts site personnel via desktop computers and mobile applications.

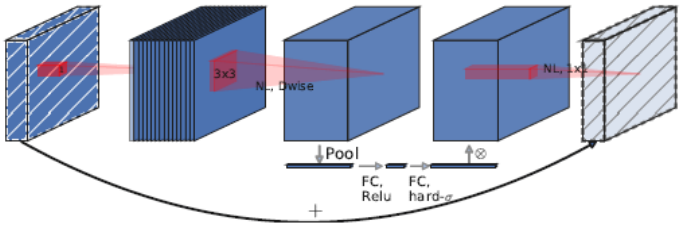
To complement our offerings of secure construction, we implement a Weather Awareness System. This system collects data of rainfall, air quality, temperatures and earthquake information. It automatically sends notifications of climate and environment changes to help construction personnel react to these situations promptly.

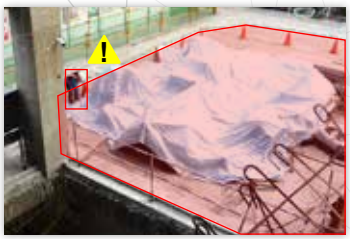
For better security and traffic flow, we offer License Plate Recognition and vehicle identification combined with access control for automatic vehicle access and parking management.

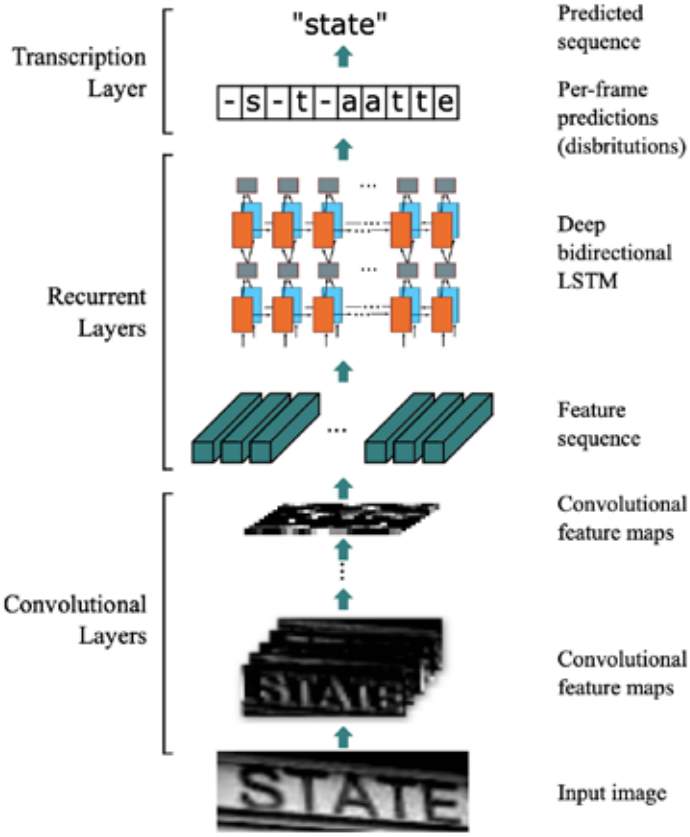


Deep Learning Architecture for Classification









Installation

Central Management

AI Cloudy Server(AWS)

Ability AI-Vue Camera

Mobile

Lora/Cat-M Station

APP Gateway

Beacon

Beacon + Database

Rain Air Temperature Earthquake

Result

The construction industry reports the highest number of fatal injury accidents every year. Even after thorough risk assessments and the implementation of adequate controls into a work environment, workers could still be subject to health and safety risks from hazards, which is why PPE detection, virtual fence and effective weather awareness are so important. Ability not only offers AI computing in real time based on edge computing also offer the high recognize accuracy rate, which can work efficiently to prevent accidents.

A Leading Manufacturer of AI Cameras & Sensors

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