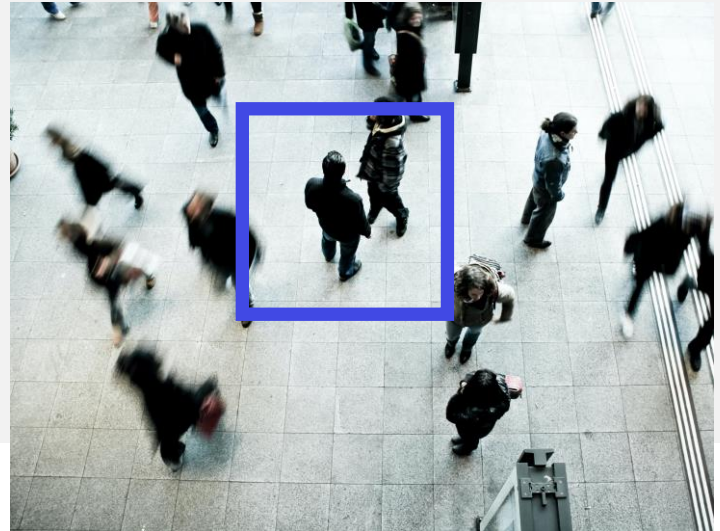VAIDIO™
BY IRONYUN

VAIDIO AI VISION PLATFORM

www.IronYun.com

Deep neural network technology has dramatically revolutionized many industries, such as healthcare, retail marketing and education. Compared to legacy computer vision algorithms, AI systems can be continuously trained and improved with better and larger data sets. At the forefront of AI video analytics, IronYun deep learning solutions can achieve 98% accuracy for certain tasks, including intrusion detection and face recognition.

The Vaidio Video Intelligence Platform delivers video analytics solutions for Security, Safety, Access Control and Social Health Screening. Vaidio's 4th generation AI makes video monitoring, security alerts, health screening and forensic investigation more accurate and automated to increase productivity, security, and safety.

VAIDIO IS THE INDUSTRY'S FIRST AI SOLUTION WITH A SIMPLE, INTUITIVE USER INTERFACE

Vaidio has built-in AI software and hardware video analytics capability for fast, efficient detection, recognition, and search of video objects in multiple video streams or storage devices.

Vaidio eliminates the need to manually inspect hours of video for objects or persons of interest and enables the user to locate the needle in the haystack of terabytes of video data. The user experience is intuitive and based on an easy-to-use Google-like natural-language interface. Search engine keywords include many types of objects, e.g., "car", "bus", "person", quantities, and colors

SYSTEM CONFIGURATION AND MANAGEMENT

Livestream
IP Cameras

VAIDIO

Search/Event results
**IronYun Web &
Mobile Interface**

Playback, upload
**Video Source
(NVR, File)**

Action (TCP/HTTP)
**Alarm, Alert,
Access, Email, VMS**

CUSTOMER PAIN POINTS VS. BENEFITS OF VAIDIO

TIME CONSUMING
Lack of a fast, real-time search for 100+ types of objects and person attributes.

TIME SAVING
Get search result within a few seconds, significantly increase productivity and time savings compared to use of manual inspection and visual identification.

LOW PERFORMANCE
Unable to fully use GPU/CPU's capability to increase search speed.

HIGH PERFORMANCE
Based on AI deep learning technology to maximize and enhance GPU/CPU's performance for fast search.

LOW ACCURACY
Accidental elimination or overlooking key video events or evidence due to human error. Cannot distinguish different object types in legacy sensor-based systems.

LOW FALSE ALERT
Vaidio deep learning video analytics system detect events based on object types, reducing 90% false alert cause by the external factor, such as weather, leaf, lighting condition.

INFLEXIBLE
Hard to integrate with different devices, such as the existing camera and NVR/DVR. Cannot perform object and person search in recorded video files from multiple sources.

EASY INTEGRATION
Easily integrate with existing NVR/VMS and all IP cameras. Therefore, Vaidio can obtain files from multiple DVR/NVRs and camera streams to perform AI-based object detection and recognition.
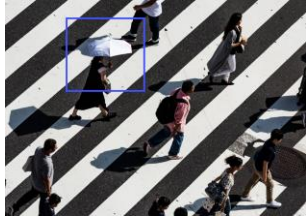
INDIVIDUAL FUNCTION
Lack of an all-in-one solution that can support video search, face recognition, intrusion detection, license plate recognition and real-time alert with high accuracy.

ALL–IN–ONE SOLUTION
Multiple functions in one complete system, including video search, intrusion detection, face recognition, LPR, weapon detection, fire detection, etc.

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KEY FUNCTIONS

VIDEO SEARCH

Detect object type, color, license plate, age, and gender

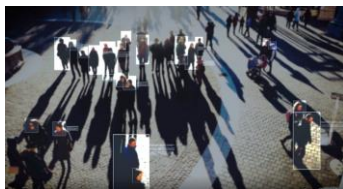- Obtain instant search result in videos in less than 1 second
- Support different object types: vehicles, people, animals, objects (cell phone, knife, backpack, etc.)
- Search by object type, color, quantity, and attributes including:
- Vehicle search by license plate
- Person search by age and gender (with Face Recognition)
- Thumbnail search result view on map and export to Excel file
- Instant playback video of recorded event: 10- or 20-second clip when the object/person of interest is detected

INTRUSION DETECTION

- Support intrusion detection based on object type, colors, quantities, and time frame
- Support multiple ROIs of any shape for different types of objects in the same frame
- Support different sensitivity levels to balance between detection speed and detection certainty
- High performance in daytime, nighttime, indoors and outdoors
- Decrease false alarms by orders of magnitude

FACE RECOGNITION & FACE SEARCH

Face Recognition:
- Compare an input face with the pre-configured face database and display similarity levels
- Detect approximate age range and gender
- Support multiple blacklists / whitelists
- Enable 1:1 and 1:N face matching
- Alert and log when a pre-registered face is recognized
- Provide 10-second playback clip of the event when the identified face appears
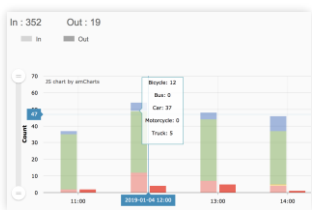
Face Search:
- Auto face detection from IP cameras or user-uploaded videos/images
- Simultaneous detection of multiple faces in one photo/video
- Enable quick search for missing person across multiple cameras
- Comply with privacy laws by not saving/requiring any ID info
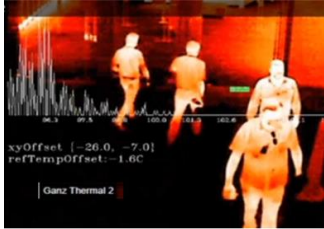
LICENSE PLATE RECOGNITION (LPR)

- Can capture and read license plate images at a slight angle (~20 degrees, not completely facing cameras)
- Automatically match detected license plates with saved lists
- Enable partial license plate search, i.e., the user can enter any characters in license plates to search for potential matches in the database
- Support three modes for different applications with different resource usage:
  - Parking Lot
  - City Road
  - Highway
- Enable vehicle search based on type and color
- Enable the system administrator to add multiple black/whitelists
- Support the license plate formats of 100+ countries

PEOPLE/VEHICLE COUNTING

- Count people and/or vehicle (multiple types) moving in various directions in real time
- Enable user to define inbound vs. outbound direction for every counting line
- Enable real-time alerts for abnormal behaviors:
  - people/vehicle moving in the wrong direction
  - person falling/crouching/loitering
  - illegal parking
- Support multiple counting lines per camera field of view
- Provide statistics organized by camera, counting line, object type, time period
- Provide added value of business intelligence: peak hours, traffic flow, occupancy per unit time

SOCIAL HEALTH ANALYTICS

Ganz Thermal 2

□ Vaidio's Social Health Analytics™ is a comprehensive suite of social health screening capabilities for organizations seeking to re-open and operate safely during the coronavirus pandemic.

□ Vaidio's Social Health Analytics™ includes:
- Face Mask Detection- No-mask alert
- Distancing Detection– Lack of social distancing alert
- Occupancy - Capacity alert
- Temperature- High body temp alert

□ These analytics can be used alone or in combination.

□ Vaidio Social Health Analytics are ideal for schools, manufacturers, warehouses, transit stations, hospitals, gyms, banks -- just about any social environment that would like to re-open and operate more safely during the coronavirus pandemic.

ABNORMAILITY DETECTION

□ Vehicle/ Person Wrong Direction Detection
- Detect and trigger alert for person/vehicle moving in the wrong direction

□ Vehicle/Person Loitering Detection
- Set loitering time threshold and receive alert when person exceeds limit

□ Person Fell Recognition
- Detect and trigger alert when people trip and fall

□ Illegal Parking Detection
- Identify when vehicles are parked in user-defined illegal spaces

VEHICLE MAKE & MODEL RECOGNITION

□ Search for a target vehicle make and model
□ Identify over 200 makes and 2000 models
□ Search through multiple cameras and uploaded files at the same time

OBJECT LEFT BEHIND DETECTION

□ Detect objects that have been left behind with no person nearby
□ Draw ROI in Vaidio's UI to specify the region of interest where there should be no objects
□ Change ROI's shape/size to appropriately fit the desired area and avoid containing unrelated passerby
□ Specify multiple object types per ROI, e.g., backpack, suitcase
□ Specify time threshold to trigger alert, i.e., minimum time that the object has been left unattended

WEAPON DETECTION

- Detect handguns, shotguns, rifles, and machine guns that appear in the camera's field of view
- Provide critical video images to handle active shooter events in real time
- Identify weapons in real time across multiple cameras (<1 seconds)
- Integrate with 3rd-party systems to trigger lockdowns upon detection

SMOKE & FIRE DETECTION

- Detect smoke and fires in real time
- Receive alerts of detection instantaneously
- Integrate with fire alarm systems to trigger alarm upon detection
- Use in any size facility to maximize safety of students, employees and/or customers
- Use in conjunction with other AI analytics for complete safety

HEATMAP GENERATION

- Generate heatmaps based on object detection
- Show the frequency of appearance of the selected object types (e.g. car, person, animal)
- Display statistics of gender and age groups
- Display heatmap results by the hour or aggregated over 1 full day (24-hour period)
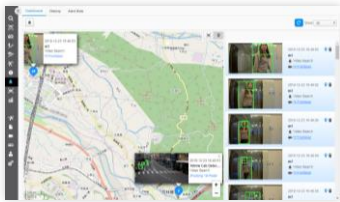
ID VERIFICATION

- Assign an ID number to a face in the user's database
- Match the detected face with an ID number in the database
- Integrate with access control systems to allow/disallow people access based on whether their identity matches.
- In Vaidio 5.0, only Florida licenses are supported, with many more states/regions in the works.

OTHER FEATURES

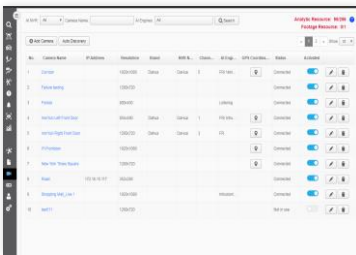Include Alert, GDPR-friendly Privacy Protection, Live Tracking, Live View, and the System Management.

ALERT

- Real-time alerts: 1-5 -second delays depending on sensitivity adjustment
- Alert based on object type, quantity, color (e.g., "red car", "not yellow bus")
- Alert based on face recognition for faces in any/no lists
- Alert based on license plate of vehicle in any/no lists
- Alert based on abnormal behavior: person/vehicle moving in the wrong direction, person falling, person crouching, loitering, illegal parking
- Flexible ROI configuration: multiple ROIs of any shape, size, object type, time limit, sensitivity
- Flexible time windows for alerts in any days of the week
- Select follow-up actions when certain events are detected, e.g., send emails to security staff, close the gate (via VMS connection or http connection)
- Support Basic and Digest authentication methods
- Show the detected event on the map based on camera's location

GDPR−FRIENDLY PRIVACY PROTECTION

- GDPR-friendly measures for video surveillance
- Powerful tracker to follow all faces/ license plates to be blurred
- Redaction time 10x shorter than manual methods
- Analytics + Redaction in one package for simple data management

ADMINISTRATION & SYSTEM MANAGEMENT

- Camera Management
- Activate/deactivate AI function(s) for individual cameras
- Define object profile: Select object types, confidence level, min/max size to be detected for individual cameras
- User Management & Access Control
  - Assign Read/Write access for each camera
  - Assign Read/Write access for each function
- Resource Pool Management for Live Stream and Videos
- Provide Vaidio System Configuration

- Hardware system information
- Exportable configuration file
- Factory reset with pre-stored configuration files (system, network and application)
- Time zone and NTP server configuration
- Network storage: Configurable volume threshold policy and retention period
- System performance monitoring: CPU, memory, disk, network and application process
- SMTP Notification Configuration
- System log and Application log monitoring

LIVE TRACKING

- Live Tracking
- Set up the alert rule to get the real-time alert when detect the target face/object
- Pin the detected event on the map based on the location of the detected cameras
- Provides the exact movement and route of the target person/object base on its location and the detected time
- Track target faces by setting the alert rule of FR list
- Track target car by setting the alert rule of license plate

LIVE VIEW

- Build-in live view function in Vaidio user interface, no need to install other software to implement video wall
- Enable viewing multiple scenes of cameras on the same screen
- Multiple pre-set format to choose for different viewing layout
- Enable drag and drop the live scenes and adjust their size and location to create the new live view layout
- Click full screen icon to hide the tool bar and implement full screen view
- View the live scenes on the map with its exact location of the cameras

About IronYun

IronYun is a global leader in artificial intelligence for security, safety and retail applications. The Vaidio platform delivers dependable accuracy and high performance across the industry's broadest array of analytics functions. We are headquartered in Stamford, CT, and deployed across tens of thousands of cameras for government, healthcare, education, retail and enterprise customers worldwide.

www.IronYun.com

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