



Face IDS

2.0

Multi-objective video analytics & biometric identification platform
FACE IDS for schools and institutions

GUARDING SAFETY
AND TRANQUILITY



COMPREHENSIVE SCHOOL SAFETY BASIC MEASURES

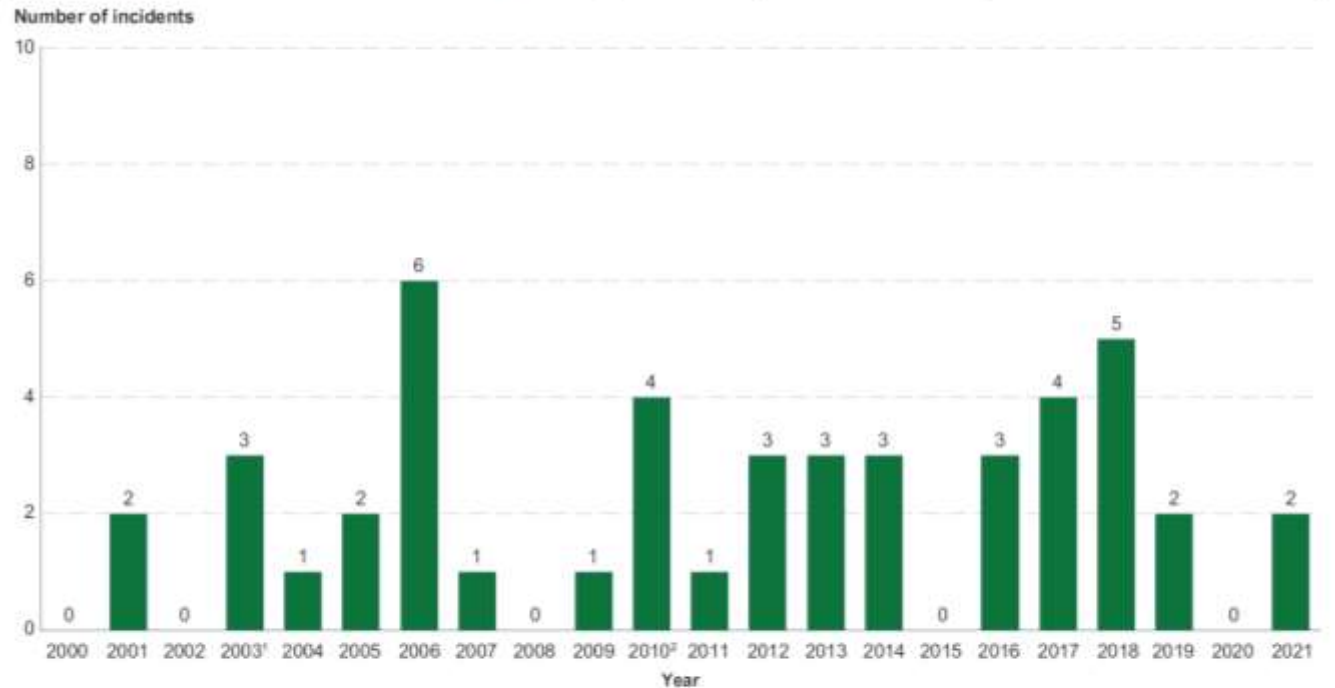
- Biometric identification of students, teachers and school staff.
- Ensuring safe entry and exit into school or campus territory and buildings. Creation of suspension and expulsion lists.
- Perimeter security of the school territory.
- Monitoring of school parking – lists of permitted parking, search for empty spaces.
- The emotional state of students and teachers. Child abuse. Bullying, discrimination and harassment. Working with a psychologist.
- Control of school personnel. Control of working hours and personnel activities.
- Detection of weapons outside the territory, as well as inside the territory and school building.
- Monitoring emergency situations: fire, smoke, loss of consciousness (person lying on the floor)
- Ensuring public order - crowd control.
- Notification of all listed emergency events to school security staff and authorized bodies.

Some crime statistics in schools

Violent Deaths, School Shootings, and Active Shooter Incidents

- From 2000 to 2021, there were 46 active shooter incidents at elementary and secondary schools, with the number ranging from 0 to 6 per year during this period. There were 47 active shooters responsible for these 46 incidents, more than two-thirds of whom were 12 to 18 years old.
- In 2021–22, the number of school shootings with casualties (188) was more than twice as high as the next highest number of documented shootings (93), which was documented the year before.

Figure 1. Number of active shooter incidents at elementary and secondary schools: 2000 through 2021



¹ Includes one active shooter incident at a county board of education meeting.

² Includes one active shooter incident at a city school board meeting.

NOTE: The Federal Bureau of Investigation (FBI) defines an active shooter incident as an incident in which "one or more individuals actively engaged in killing or attempting to kill people in a populated area." Some data have been revised from previously published figures.

SOURCE: U.S. Department of Justice, Federal Bureau of Investigation, *A Study of Active Shooter Incidents in the United States Between 2000 and 2013*, *Active Shooter Incidents in the United States in 2014 and 2015*, *Active Shooter Incidents in the United States in 2016 and 2017*, *Active Shooter Incidents in the United States in 2018*, *Active Shooter Incidents in the United States in 2019*, *Active Shooter Incidents: 20-Year Review 2000–2019*, *Active Shooter Incidents in the United States in 2020*, and *Active Shooter Incidents in the United States in 2021*, retrieved January 26, 2023, from <https://www.fbi.gov/about/partnerships/office-of-partner-engagement/active-shooter-resources>. See *Digest of Education Statistics 2022*, table 228.15

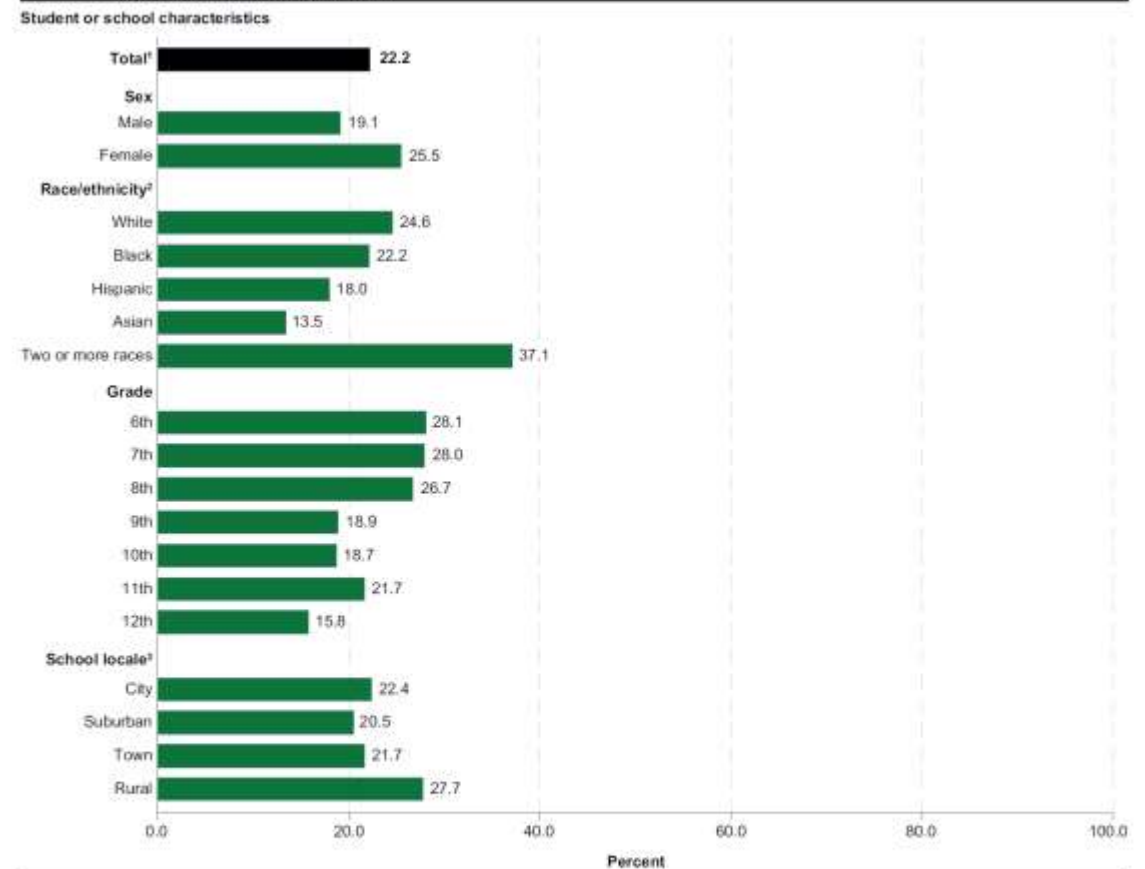
Some crime statistics in schools

Nonfatal Student and Teacher Victimization

In recent years, nonfatal student and teacher victimization was generally less prevalent than about a decade ago:

- The nonfatal criminal victimization rate for students ages 12–18 at school in 2019 was not significantly different than the rate in 2010. From 2019 to 2021, the rate at school decreased from 30 to 7 victimizations per 1,000 students.
- A lower percentage of students ages 12–18 in 2019 than in 2009 reported being bullied at school (22 vs. 28 percent).
- Lower percentages of public school teachers in 2020–21 than in 2011–12 reported being threatened with injury by a student from their school (6 vs. 10 percent) and being physically attacked by a student from their school (4 vs. 6 percent).

Figure 2. Percentage of students ages 12–18 who reported being bullied at school during the school year, by selected student and school characteristics: 2019



¹ Total includes race categories not separately shown.
² Race categories exclude persons of Hispanic ethnicity. Data for Pacific Islander and American Indian/Alaska Native students did not meet reporting standards in 2019; therefore, data for these two groups are not shown.
³ Excludes students with missing information about the school characteristic.
NOTE: "At school" includes in the school building, on school property, on a school bus, and going to and from school. Although rounded numbers are displayed, the figures are based on unrounded data.
SOURCE: U.S. Department of Justice, Bureau of Justice Statistics, School Crime Supplement (SCS) to the National Crime Victimization Survey, 2019. See Digest of Education Statistics 2020, table 230.40.

Face IDS 2.0

Multi-objective video analytics & biometric identification platform

0,3
seconds

Search among 1.5
billion faces



Neural network

for processing real-time video streams and archived data



Ready-made solution

intuitive web-interface, all necessary components included in delivery



Platform

with extensive integration capabilities & interaction modules for ACS and VMS

Face IDS application areas



For government



Smart & safe cities:
safety application, improving
quality of life



Governmental services:
biometric authentication



Public events:
working with mass events & crowd
management



Transport:
working with transport & monitoring
operations related to SWM



For business



Finance:
authentication & verification by
face in apps



Industry:
ensuring safety at workplace



Retail:
target audience analysis & fraud
prevention



All industries:
access control, attendance control
& time tracking

Key technologies

Face IDS recognition



Faces & attributes

Database search, faces comparison, gender, age, emotions recognition, masks, etc.



Vehicles

Model, color, vehicle type & category recognition, etc.



Body & attributes

Search by body, tracking, counting, clustering, clothing recognition, etc.



License plate number

LPN recognition for 27 countries

Detection and features for schools



Biometric authentication:
Students, teachers and staff



Ensuring safe entry and exit:
student counting and working
time control



Weapon detection
outside the territory, as well as inside
the territory and school building



School parking:
car entry control, list of permitted
parking, empty spaces



Smoking control
on school grounds and inside the
building



Police & emergency services
possibility to connect for quick respond
to emergencies



Emotions detection,
tracking students behavior and progress



Perimeter security
of the school territory



Fire and smoke control



Ensuring rapid response to
quickly provide assistance to
students in case of emergency
situations



Identification and analysis of incidents (recording the event,
recording time, place and participants)



Tracking
(on map/building floor plan)

Results of implementation of Face IDS comprehensive security system

Preventing unauthorized access to the protected area including weapon detection

Possibility to react in advance to the incident - before it becomes classified as an "emergency"

Automated system for recording the school staff working hours

Increasing the level of students discipline because of the preventive effect (the student knows that his actions are controlled)

Monitoring of students attendance (statistics of lateness and truancy, important for schools consisting of several buildings)

Presence of an indisputable evidence video base, which allows you to investigate thefts, vandalism and other emergency situations

Face IDS main features



Entry to the school according to facial recognition or with double identification (face + pass or code)



Wear control personal protective equipment (masks)



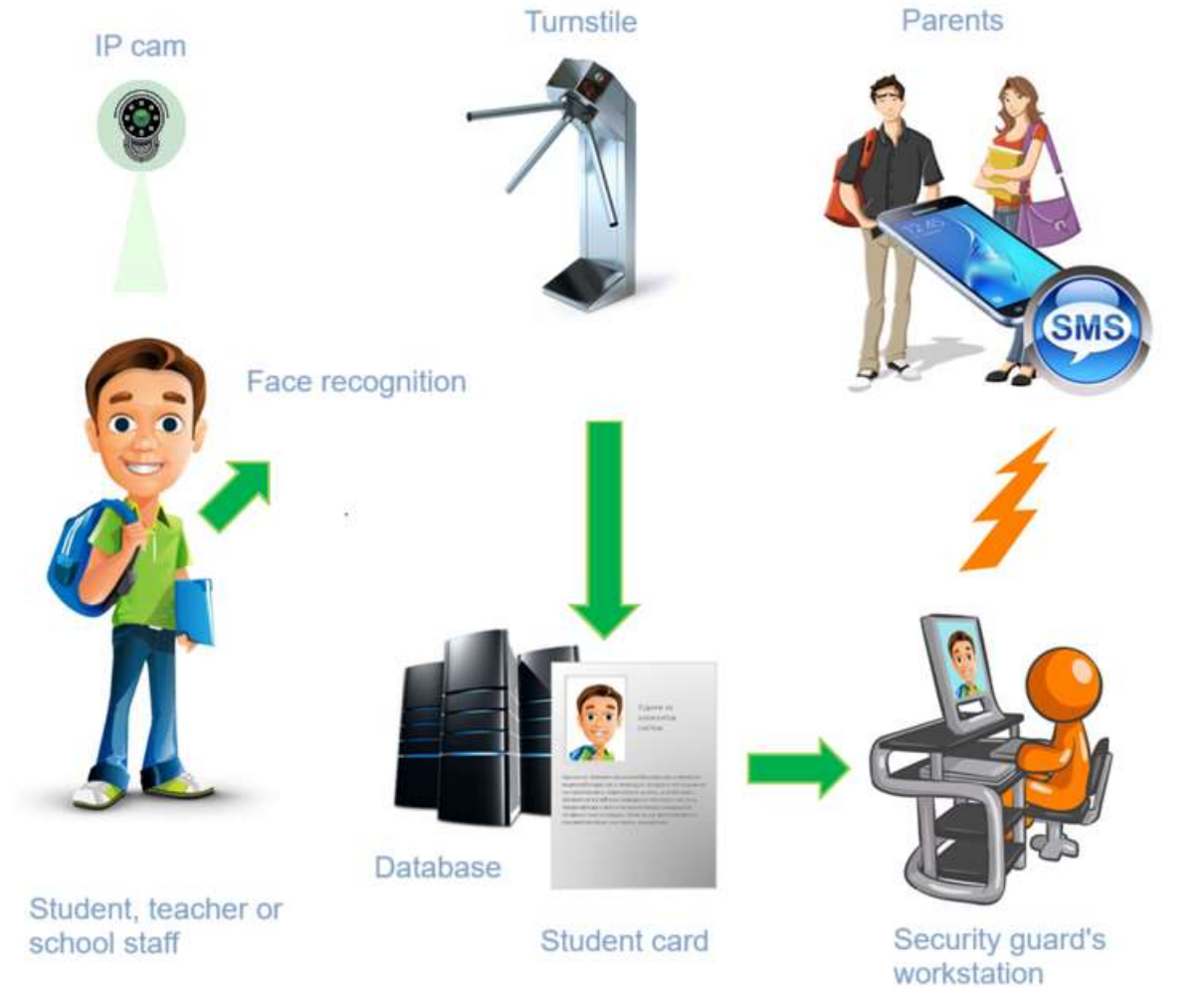
Perimeter and limited access zone control – friend or foe system



Facility zoning: biometric control of staff access to certain areas



Analysis of the emotions of the student and teacher



Weapon detection

Face IDS algorithm is capable of recognize all types of guns in the hands of a man as soon as he enter the camera visibility area outside and inside the school.

- The episode with the weapon can be viewed immediately to check for false alarm (for umbrellas, sticks, etc.)
- In case of the real threat, security may take alarming actions: block inputs, enable alert and call the police.



Weapons Detector

Время обработки: 0.196

Точность детектирования: до 0.991

Количество обнаруженных объектов в кадре: 1

Имя: Раст

ПОИСК

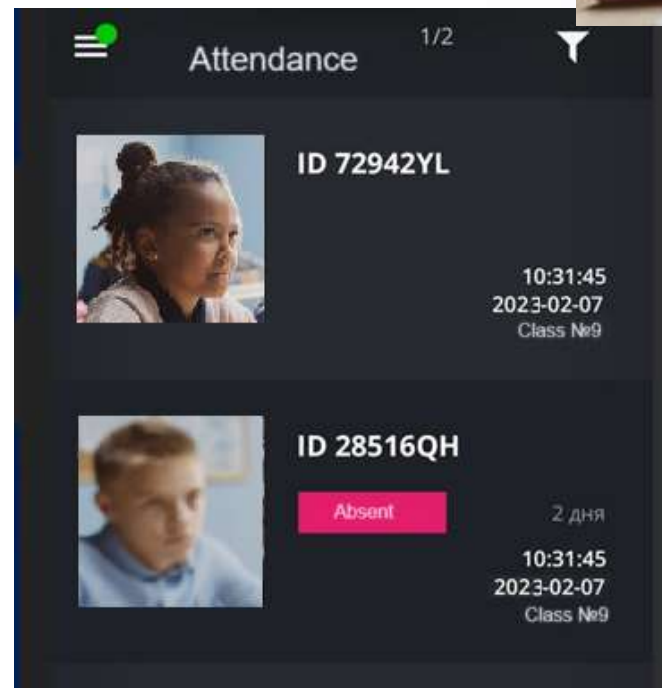
Результатов: 2

Изображение	Имя объекта	Дата фиксации	Время фиксации	Тип оружия	Вероятность распознавания	Трек
	Раст	14.10.05	20/09/2021	п/а	0.9841	body_0631dc78a2b1-10
	Раст	14.09.45	20/09/2021	п/а	0.9844	body_0631dc78a2b1-1

Automatic roll call of students

Video analytics instantly makes a roll call of students, which significantly saves the time allotted for the lesson

Traditionally, roll call takes up to 10 minutes from the lesson time. For example, with a course duration of 40 hours, duration - 8 weeks and a frequency of 5 times a week for 1 hour, the loss of time is about 50 minutes every week, or minus 7 hours from the entire course.



Proctoring



Candidate Identity Verification: Student Authentication/Verification in Online Exams



Built-in Liveness technology will allow you to distinguish a live face in front of the camera from a photo or video image

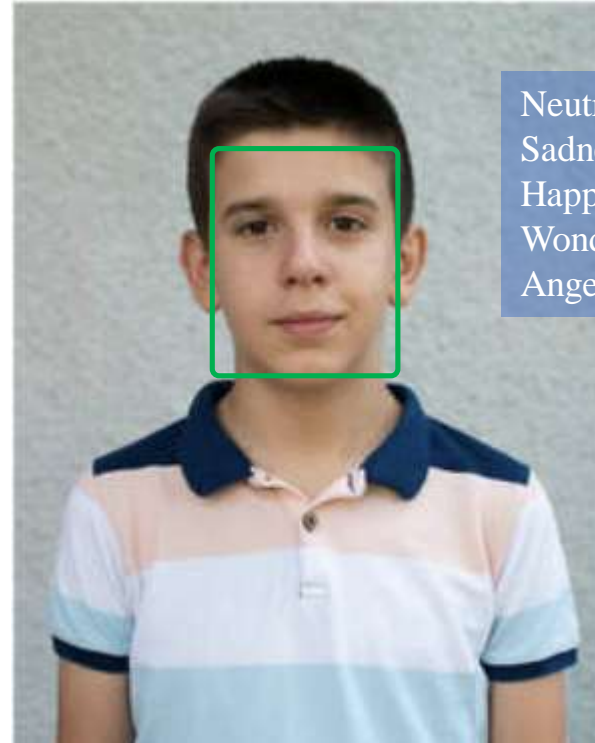
Liveness

The technology works with static images, which can significantly reduce the need for processing resources

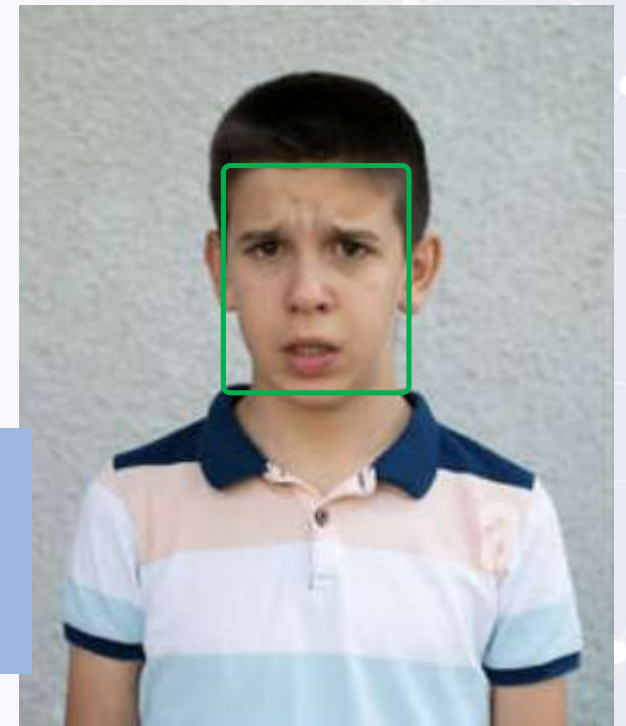


Emotions control

For persons entered the camera visibility area, the system evaluates the probability of emotions on a scale of [0..1], and a complete analysis of the mental state of the child is carried out using the emotional state and all this data is sent to the psychologist of the school for further work with the student based on the student's emotional data



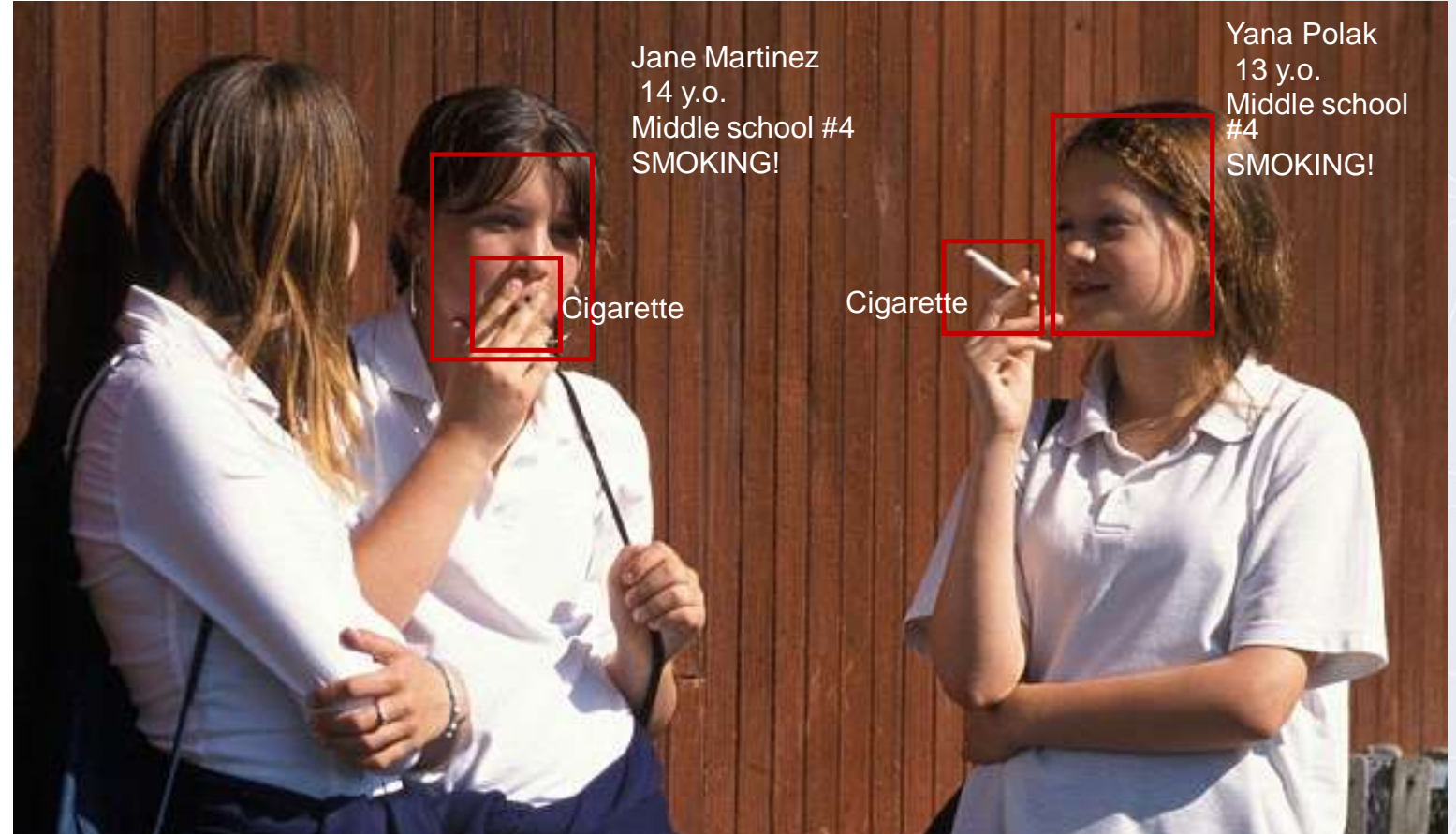
Neutral	0,85
Sadness	0,1
Happiness	0,80
Wonder	0,65
Anger	0,1



Neutral	0,30
Sadness	0,85
happiness	0.10
wonder	0.25
anger	0,40

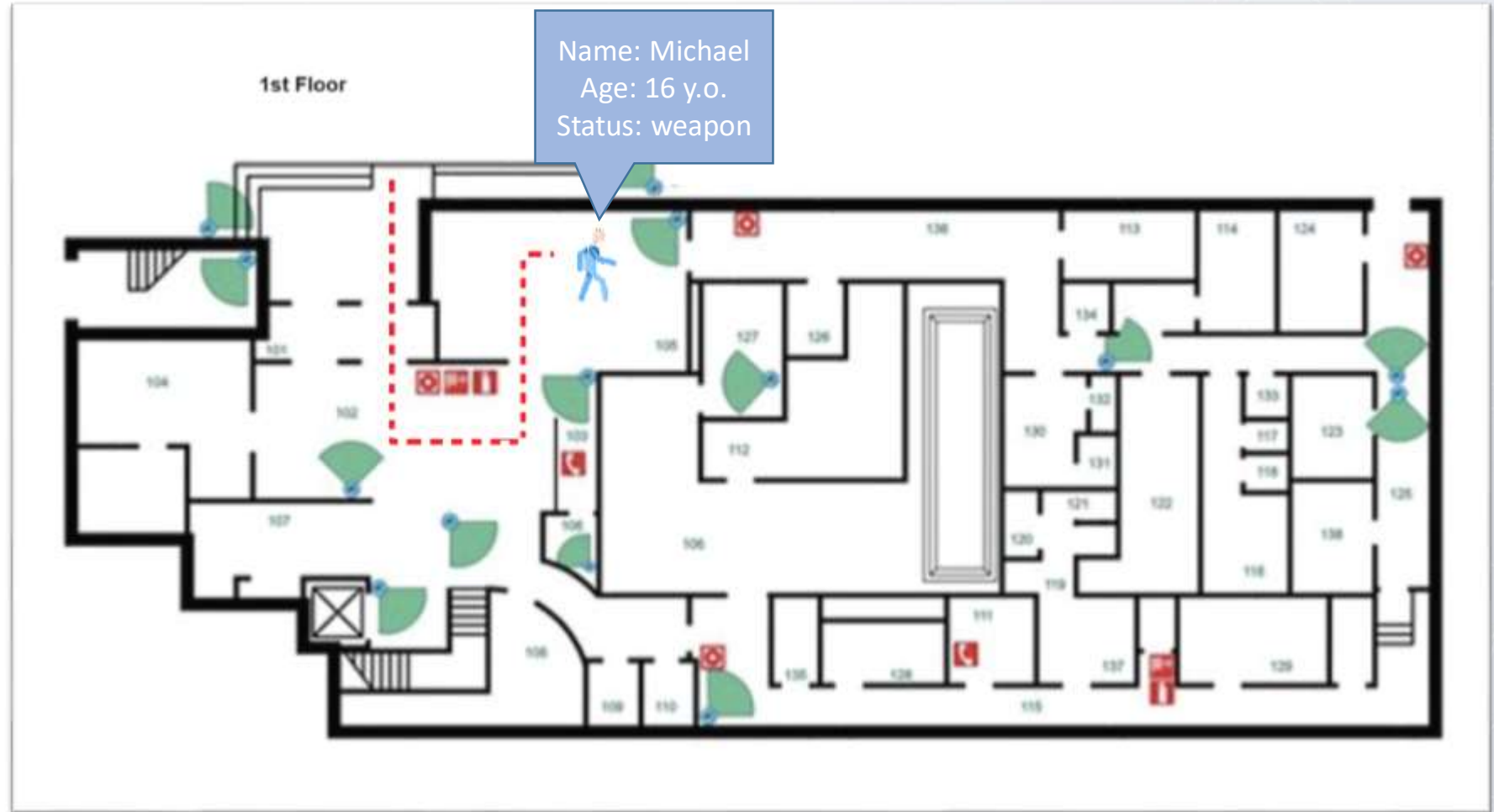
Smoking control

The system is able to recognize smoking episodes, detect smoke and fire, and then send a notification.



Searching and Tracking

- Face IDS system can search faces comparison, gender, age, emotions recognition, glasses, masks, etc.
- Optionally the system can track the object on map or floor plan of the building



Integration with other educational institutions



Integration with existing systems, including Digital Diary



Notification of parents about the arrival and departure of students



Employee access to systems using face recognition

How to implement a biometric access control system



How to implement a biometric access control system



If the school already has an access control system:

- There is no need to completely replace an existing access control system!
- It is possible to add facial and license plate recognition technology to an existing access control system without capital expenditures.
- Management logic, user accounting and reporting remain in the existing system.



If the school does not yet have an access control system

- The access control system of one of the FaceIDS partners with ready-made integration will allow you to implement the system in the shortest possible time.
- We will help you choose the most suitable ACS system and equipment.