CASE STUDY

VEHICLE VIDEO SURVEILLANCE SYSTEM

Time: 2019 | Country: Oman | Shipment quantity: 500 units

The Ministry of Education of Oman has been renting vehicles of bus companies as school buses because it does not have its own school buses. The Ministry of Education has many concerns: drivers do not drive school buses according to specified planned routes, not swipe cards on time, not arrive at bus stops on time, or not get enough sleep after driving for a long time. In addition, a growing number of parents want to know more about their children, for example, children's location and safety. In this way, the Ministry of Education decides to work with Meitrack and apply Meitrack's mobile digital video recorder (DVR) bus management solution by implementing high-quality video surveillance and live tracking.

HARDWARE:

1

Meitrack is a leading telematics company providing solutions for fleet management and GPS tracking. In addition to the video surveillance function, Meitrack's mobile DVR integrates with all functions of a GPS tracker, especially live tracking, and allows users to define the device's working time.

Video Record Settings

| Channel 1 | Channel 2 | Channel 3 | Channel 4 |

Pre-recording Time(secs) `3`

Video Packing Length(mins) `60`

Video Period

	Period 1	Period 2	Period 3	Period 4
Sunday	☑ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59
Monday	☑ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59
Tuesday	☑ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59
Wednesday	☑ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59
Thursday	☑ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59
Friday	☑ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59
Saturday	☑ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59	☐ 12:00:00 – 11:59:59

Set

2

The mobile DVR supports up to 2 TB storage capacity. Inside each school bus, a mobile DVR is connected to four cameras for live video surveillance, and videos can be stored for one month (six hours per day). The cameras can even operate in a more than 80°C ambient temperature and features the IP67 water resistance rating.

3

The mobile DVR is connected to three RFID readers to record the attendance of drivers and students and control the vehicle engine.

▶ The first RFID reader is used for drivers to swipe their cards and start the vehicle engine, so that administrators can know when and where drivers start or stop the school bus.

▶ The second RFID reader is used for students to swipe their cards after they get on a school bus, so that administrators can know when and where students go inside the school bus.

▶ The third RFID reader is used for students to swipe their cards before they get off a school bus, so that administrators can know when and where students leave the school bus.

4

The mobile DVR is connected to a LCD display, so that drivers can easily obtain the number of students in real time. On the LCD display, the number of students and RFID card numbers will be showed in real time.
The LCD display shows the status of four cameras. With the LCD display, drivers can view live videos anytime, confirm whether students get on or get off the school bus, get real-time information about everything going on inside or around the school bus, and quickly check the number of students inside the school bus.

5

- ● Drowsiness
- ● Distraction
- ● Absence
- ● Smoking
- ● OnPhoneCall
- ● Yawning

To prevent driver fatigue and ensure the safety of students, the mobile DVR is connected to Meitrack A89 driver fatigue monitoring system which is used to detect drivers' fatigue state. When drowsiness, distraction, driver absence, smoking, calling, or yawning is detected, an audible alert will be sent, a photo will be taken, and drivers' seat will vibrate to tell the danger as fast as possible so that drivers could avoid it.

6

The mobile DVR supports motion detection, which is used to confirm whether all students get off a school bus. When cameras detect image changes as a result of movement inside the school bus, it means there are still students who do not leave the school bus. This information will be reported to the platform through the mobile DVR and notified of the school, which will help prevent accidents.
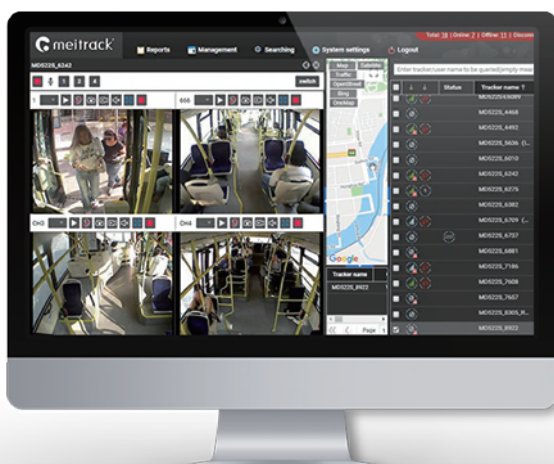
PLATFORM:

1

In the whole project, three types of platform accounts are available:

▶ Account of the Ministry of Education: Grant the highest level user permission to the Ministry of Education.
▶ Account of schools: Grant the second level user permission to schools.
▶ Account of parents: Grant parents the user permission to monitor the school bus status, but they do not have the management permission.

Meitrack MS03 platform allows administrators to assign three levels of user permissions to the three types of users.

2

On the MS03 web platform, the Ministry of Education and schools are allowed to view attendance reports of drivers and students, manage driver and student information, and get real-time information about everything going on inside or around the school bus.

3

The MS03 web platform provides driver fatigue reports and supports route planning. With the two functions, administrators can effectively manage driving behaviors.

4

With the MS03 app platform, parents can pinpoint the exact location of the school bus in real time, and estimate the arrival time based on received Enter and Exit Geo-fence alerts. When their children swipe cards, an app notification will be sent to mobile phone numbers of parents. This gives parents peace of mind.

APPLICATION PROCESS:

Drivers swipe cards at 7:00 am and then drive school buses according to planned driving routes to pick up students. After school buses stop at each assembly point, students get on buses and swipe their cards. After school (18:00 pm), students get on school buses and swipe their cards. When school buses arrive at each assembly point, some students swipe cards before they get off school buses. Then parents will receive a notification from the app. After the ACC is off, the buzzer connected to the mobile DVR reminds drivers to check whether there are students inside school buses by making sounds. After drivers leave school buses, if a camera detects students' movement inside school buses, a movement alert will be reported to the platform. Administrators will get the information immediately that some students forget to get off school buses.

Camera

Camera
Driver Fatigue Monitor
LCD

Driver

Camera

RFID

RFID

Camera

RFID

Mobile DVR

Students

RFID: used for student attendance management

RFID: used for driver attendance management and ignition on

Some students forget to get off school buses, but drivers can get this information through the mobile DVR.

When students swipe their cards, an SMS alert or app notification will be sent to their parents.

Parents