# SCHOOL BUS PROJECT SOLUTION

A comprehensive solution for managing school bus fleets and improving safety

Meitrack Group

Keywords : School bus MDVR ADAS Passenger flow sensor

www.meitrack.com

# Catalogue

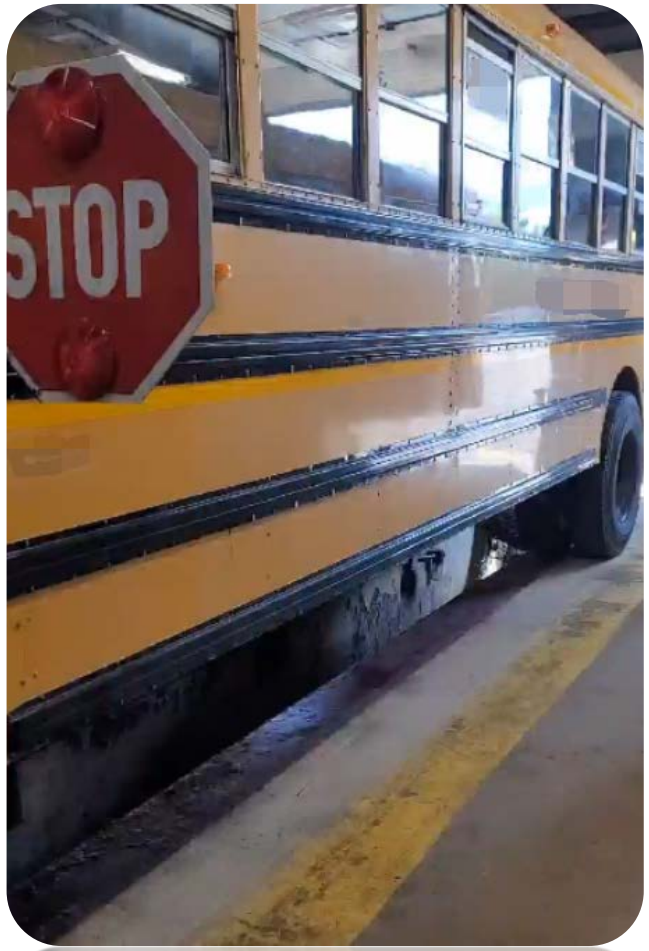

# *Project Background*

# Project Background

The school bus is a special vehicle for transporting students to and from school. Safety is the most important factor, so how to monitor the running status of school buses in real time and effectively prevent accidents is the most concerned issue. The main problems facing school buses are as follows:

Main problems

1. When the number of school buses is large, the monitoring is difficult
2. How to dispatch vehicles remotely in emergencies
3. How to monitor drivers for driving violations to prevent accidents?
4. How to avoid the situation that there are students left in the school bus



# Project Background


The MDVR remote monitoring system independently developed by Meitrack is based on 4G wireless transmission . Users can install cameras and device on the bus, use 4G signals for video transmission and easily achieve remote monitoring anytime and anywhere . The videos can be stored locally or uploaded to the server for easy retrieval. The system is also compatible with ADAS camera, which can help improve drivers' driving behavior and reduce the incidence of accidents. In addition, it is also compatible with passenger flow sensors, which can count the number of students on and off, and avoid the situation that there are students left on the school bus.

# *Solution*

# Solution

Our AI MDVR system consists of the following four parts

## GPS real-time positioning

Meitrack devices provide real-time GPS positioning and playback of historical tracks.

## Audio and video data transmission

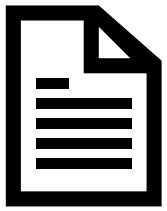
Device can connect to ADAS camera and ordinary cameras to monitor road conditions as well as inside the school bus , and support local storage or cloud storage of videos.

## Passenger flow statistics

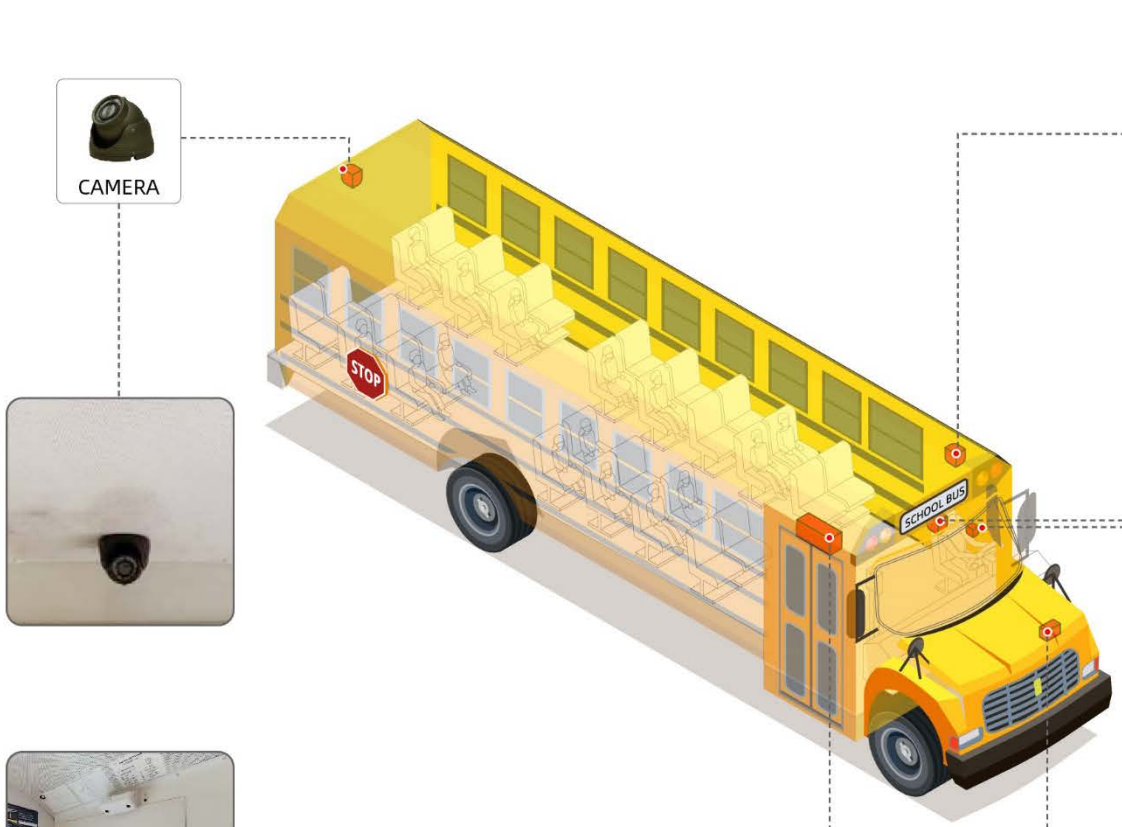
With the use of passenger flow sensors, it is possible to count the number of students getting on and off the bus every day and prevent the occurrence of students being left on the bus.

## Data analysis

The platform can generate different reports to analyze the driver‘s driving behavior and the number of students getting on and off the bus each day.



# Solution




Ordinary camera. - Monitor inside the bus



Passenger flow sensor - count the number of students getting on and off the bus

CAMERA

Ordinary camera. - Monitor inside the bus

CAMERA


Ordinary camera. - Monitor inside the bus

ADAS

ADAS cameras - monitor and assist drivers

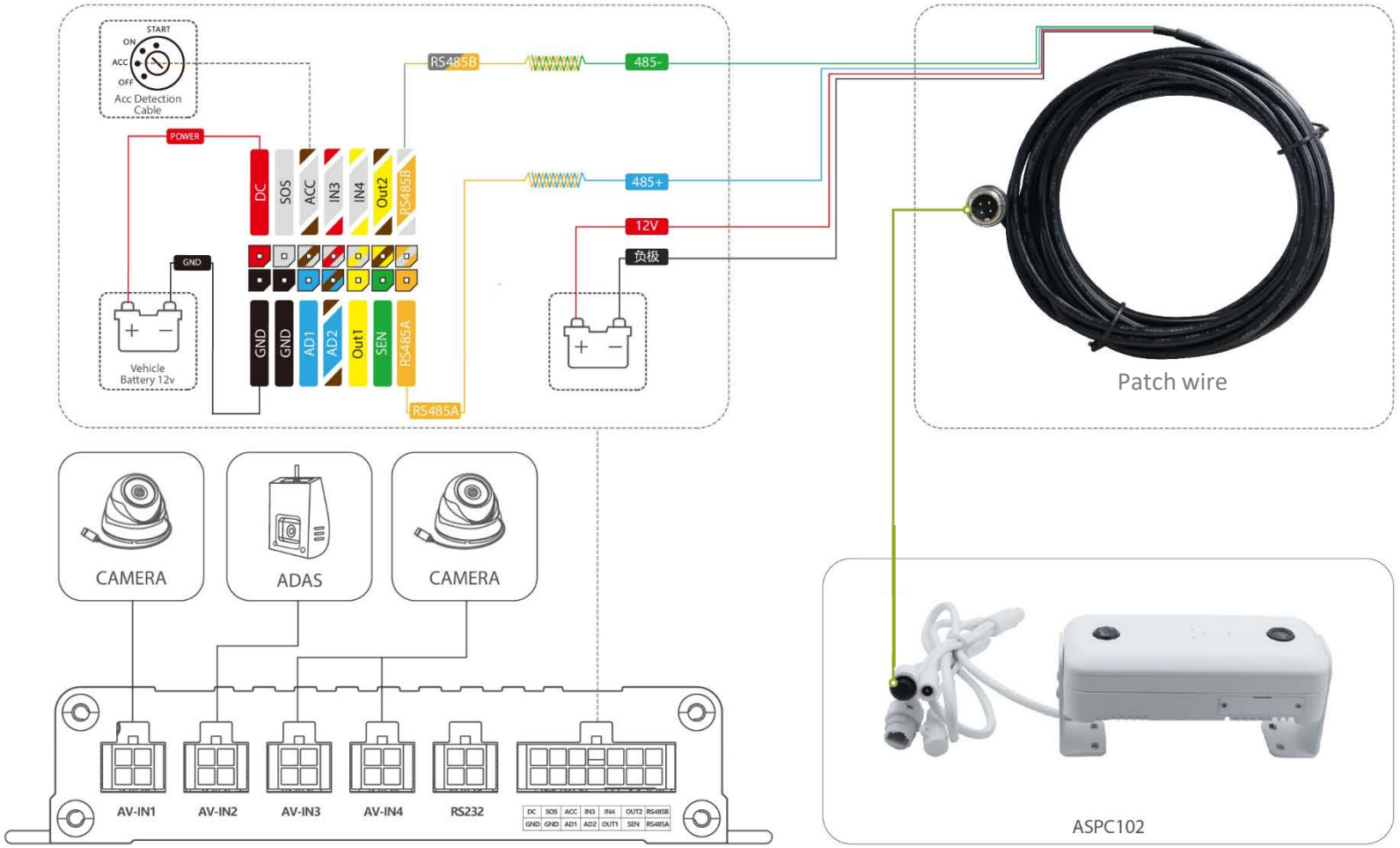
MD500S

MD500S-MDVR

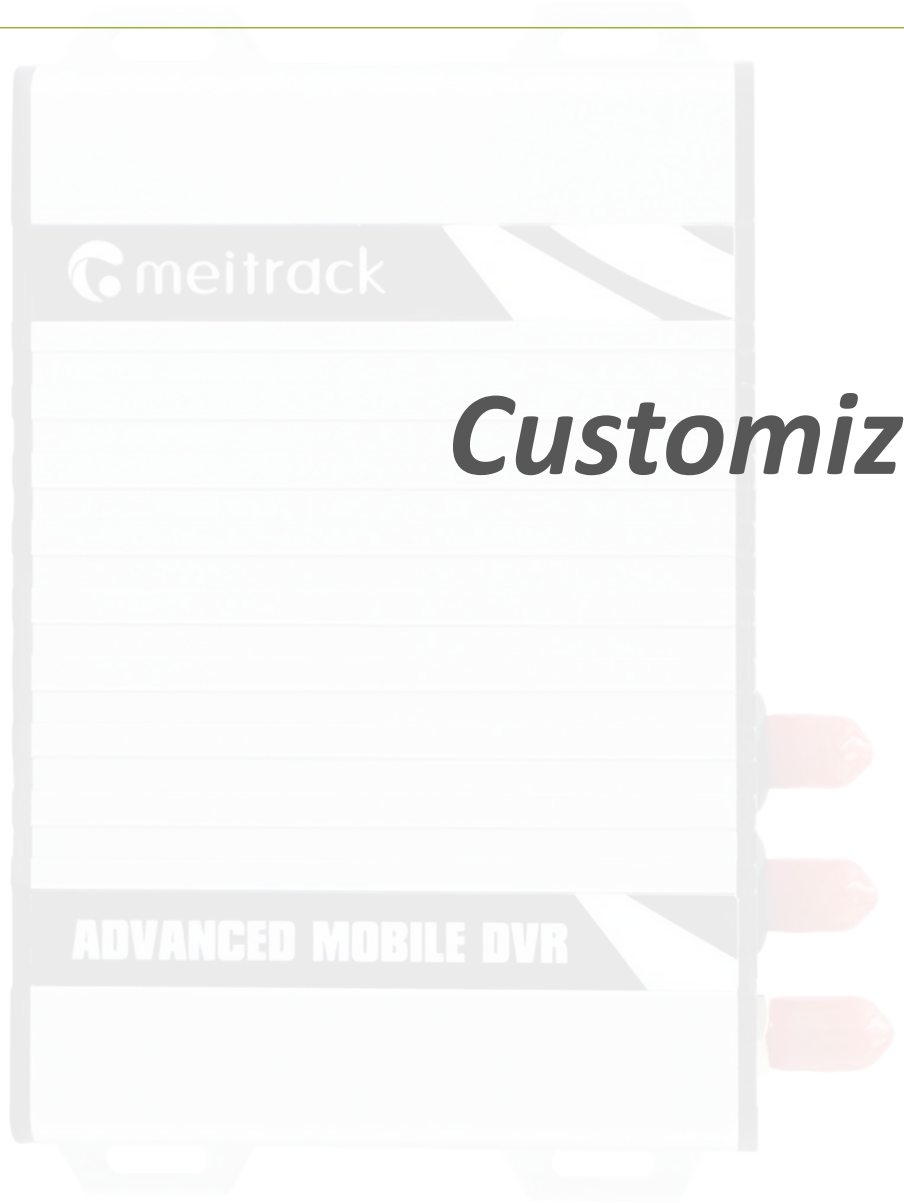
School bus installation scenario

This is our recommended camera installation position, clients can change to a more suitable installation position according to their own actual scene

# Solution




Device Wiring Diagram




# *Customization*

# Customization

1 Canbus interface


1 RS485 interface

2 Integrate Passenger flow sensor

2

3 Added Bluetooth passthrough command

3 Users can develop Bluetooth communication function

We can make some modifications on the standard version to adapt to the practical application of clients. For example, in this project, we changed the original canbus interface of the device to RS485 interface to be compatible with the passenger flow sensor.

# *Function Presentation*

# Function Presentation

Dual server transmission


All Meitrack MDVR devices support dual server transfer, which allows users to upload data to two completely different platforms at the same time, which not only gives users the option of different interface styles, but also the data will be double backed up. On the left is a platform developed by our client, while on the right is Meitrack's MDVR platform.

# Function Presentation

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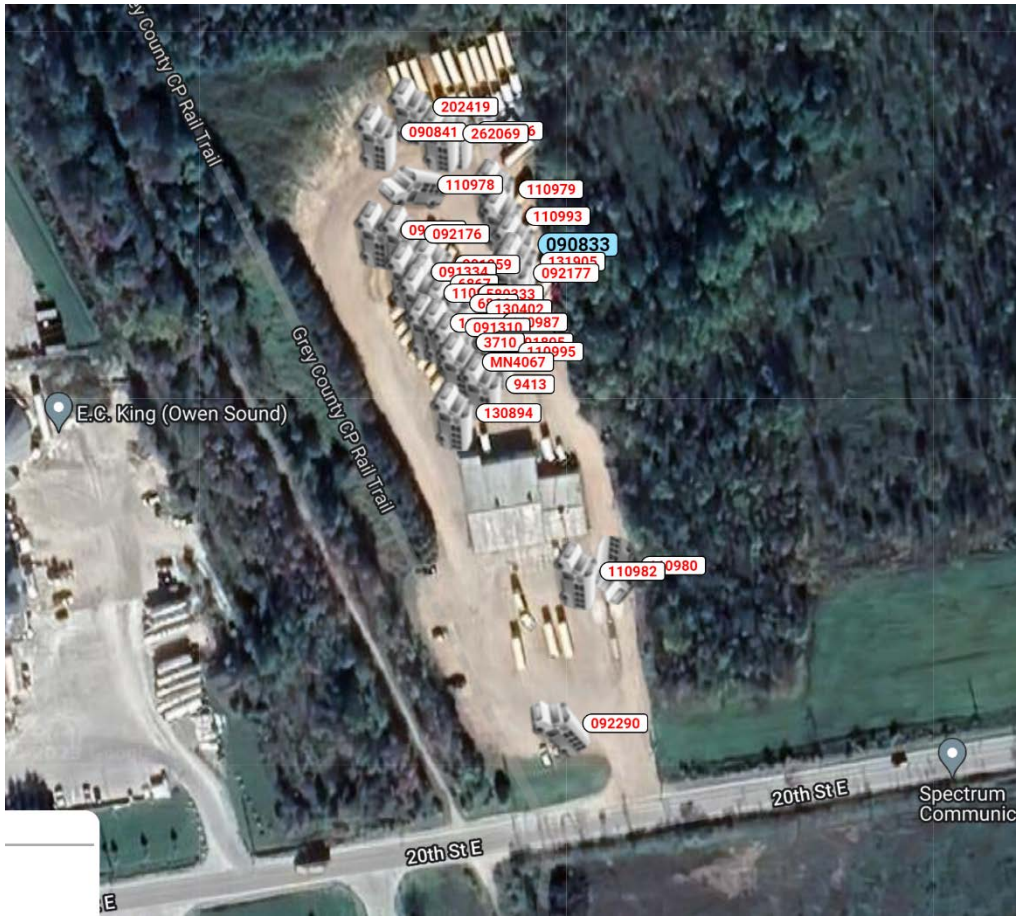
## Real-time location

Real-time location is a basic function. When there are more school bus , manager can quickly know the location of each school bus on the platform, and schedule it reasonably according to the actual situation.



# Function Presentation

Video monitor & Playback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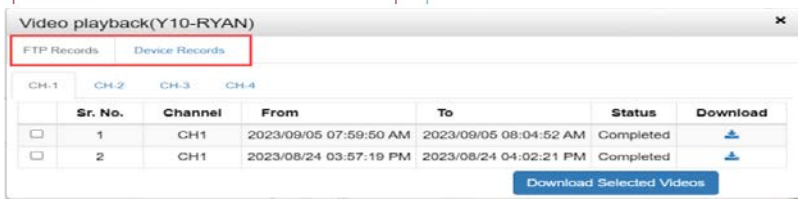
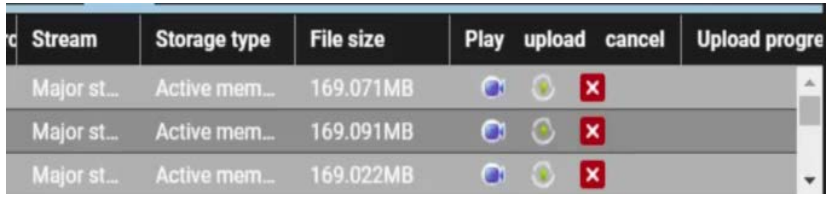


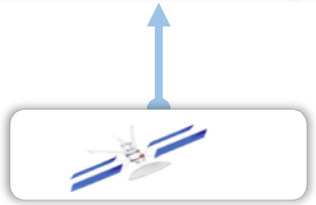




Real-time monitoring of the situation in the school bus, in order to adjust in time when special circumstances occur. Video files can be stored locally on the device or in the server, and it can be used as evidence when unexpected events occur

# Function Presentation

## History Data Report

| GPS Time | Received Time | Fix | Location | Journey | Run Time | Speed | Alarm Type | Altitud |
|---|---|---|---|---|---|---|---|---|
| 2023/09/13 00:12:17 | 2023/09/13 07:30:46 | Valid | | 1077.73 Km | 29 days 11:47:34 | 0.00 | Track by Time Interval | 321 |
| 2023/09/13 01:12:07 | 2023/09/13 07:30:46 | Valid | | 1077.73 Km | 29 days 12:47:34 | 0.00 | Track by Time Interval | 321 |
| 2023/09/13 01:13:17 | 2023/09/13 07:30:46 | Valid | | 1077.73 Km | 29 days 12:48:42 | 0.00 | CH2 Blocked | 321 |
| 2023/09/13 02:11:58 | 2023/09/13 07:30:46 | Valid | | 1077.73 Km | 29 days 13:47:30 | 0.00 | Track by Time Interval | 321 |
| 2023/09/13 02:32:32 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 14:08:05 | 0.00 | CH2 Blocked | 321 |
| 2023/09/13 03:11:49 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 14:47:29 | 0.00 | Track by Time Interval | 321 |
| 2023/09/13 04:09:23 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 15:45:12 | 0.00 | CH2 Blocked | 321 |
| 2023/09/13 04:11:40 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 15:47:28 | 0.00 | Track by Time Interval | 321 |
| 2023/09/13 05:11:30 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 16:47:25 | 0.00 | Track by Time Interval | 321 |
| 2023/09/13 05:28:42 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 17:04:37 | 0.00 | CH2 Blocked | 321 |
| 2023/09/13 06:11:21 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 17:47:22 | 0.00 | Track by Time Interval | 321 |
| 2023/09/13 07:11:12 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 18:47:20 | 0.00 | Track by Time Interval | 321 |
| 2023/09/13 07:20:41 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 18:56:50 | 0.00 | Track by Time Interval | 321 |
| 2023/09/13 07:20:41 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 18:56:50 | 0.00 | Start Moving | 321 |
| 2023/09/13 07:20:41 | 2023/09/13 07:30:49 | Valid | | 1077.73 Km | 29 days 18:56:49 | 0.00 | Ignition On | 321 |
| 2023/09/13 07:20:51 | 2023/09/13 07:41:26 | Valid | | 1077.73 Km | 29 days 18:57:00 | 0.00 | Track by Time Interval | 329 |



From: 2023-11-04 00:00 To: 2023-11-06 23:59 Speed: >= 0 Address Ignore drift

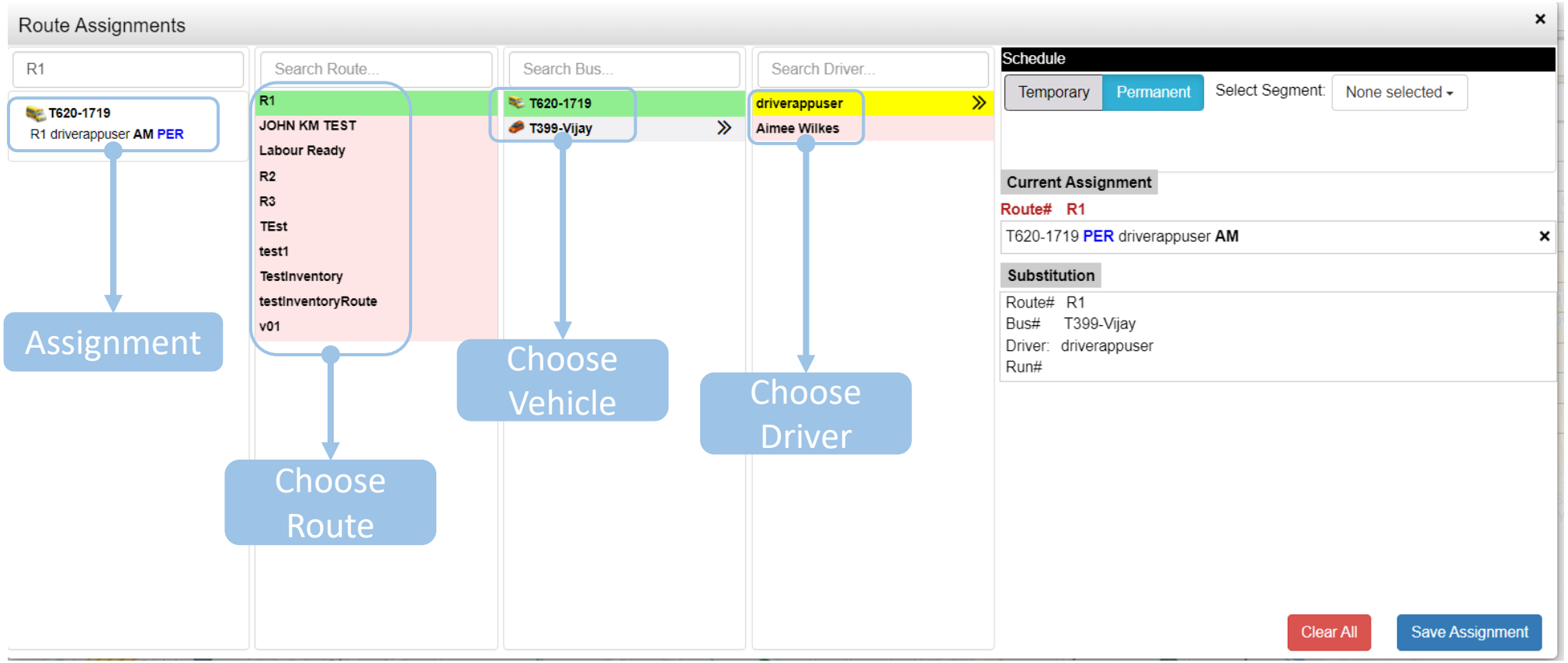
| Tracker name | GPS time | Receiving time | GPS valid | Speed | Latitude | Longitude | Alarm type | Altitude.. | North An |
|---|---|---|---|---|---|---|---|---|---|
| | 2023-11-04 00:31:01 | 2023-11-04 00:32:48 | Valid | 0 | 44.182832 | -80.385736 | Track By Time Interval | 528 | 201 |
| | 2023-11-04 01:29:37 | 2023-11-04 01:31:23 | Valid | 0 | 44.182832 | -80.385736 | Start Moving | 528 | 201 |
| | 2023-11-04 01:29:37 | 2023-11-04 01:31:23 | Valid | 0 | 44.182832 | -80.385736 | Input 2 Active | 528 | 201 |
| | 2023-11-04 01:29:40 | 2023-11-04 01:31:25 | Valid | 0 | 44.182788 | -80.385696 | Input 1 Inactive | 535 | 201 |
| | 2023-11-04 01:29:41 | 2023-11-04 01:31:25 | Valid | 0 | 44.182788 | -80.385696 | People Counter | 535 | 201 |
| | 2023-11-04 01:29:44 | 2023-11-04 01:31:25 | Invalid | 0 | 44.182788 | -80.385696 | Track By Time Interval | 535 | 201 |
| | 2023-11-04 01:29:54 | 2023-11-04 01:31:25 | Valid | 0 | 44.182788 | -80.385696 | Track By Time Interval | 535 | 201 |
| | 2023-11-04 01:30:04 | 2023-11-04 01:31:25 | Valid | 0 | 44.182788 | -80.385696 | Track By Time Interval | 535 | 201 |
| | 2023-11-04 01:30:14 | 2023-11-04 01:31:25 | Valid | 0 | 44.182788 | -80.385696 | Track By Time Interval | 535 | 201 |
| | 2023-11-04 01:30:24 | 2023-11-04 01:31:25 | Valid | 0 | 44.182788 | -80.385696 | Track By Time Interval | 535 | 201 |
| | 2023-11-04 01:30:32 | 2023-11-04 01:31:25 | Valid | 5 | 44.182820 | -80.385688 | Cornering | 536 | 10 |
| | 2023-11-04 01:30:34 | 2023-11-04 01:31:26 | Valid | 4 | 44.182848 | -80.385688 | Track By Time Interval | 537 | 357 |
| | 2023-11-04 01:30:38 | 2023-11-04 01:31:26 | Valid | 7 | 44.182920 | -80.385736 | Cornering | 536 | 307 |
| | 2023-11-04 01:30:44 | 2023-11-04 01:31:26 | Valid | 12 | 44.182936 | -80.385960 | Cornering | 534 | 261 |
| | 2023-11-04 01:30:44 | 2023-11-04 01:31:26 | Valid | 12 | 44.182936 | -80.385960 | Track By Time Interval | 534 | 261 |

The device will upload the alarm information to the server, and the manager can view the past alarm report on the platform. When something unexpected happens, it can be used as evidence.

# Function Presentation

route assignment

This is a very clever feature developed by our customers based on practical applications. The manager can assign the designated school bus and driver to the corresponding route on the platform



# Function Presentation

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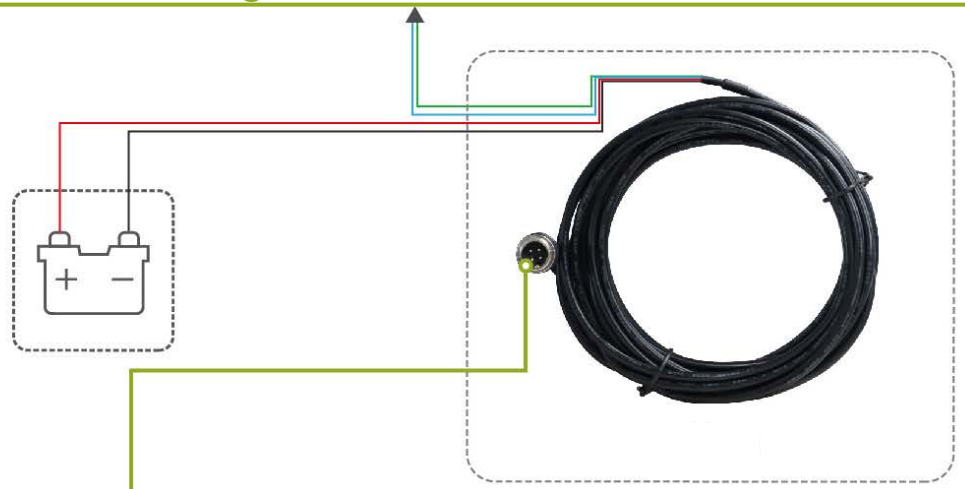
## Passenger flow sensor

Count the number of students getting on/off the bus to prevent the occurrence of students being left on the school bus. When installing the passenger flow sensor, the sensor can be connected through the network cable, so that user can see the real-time image on the PC to find the most suitable location


PLATFORM

INTERNET



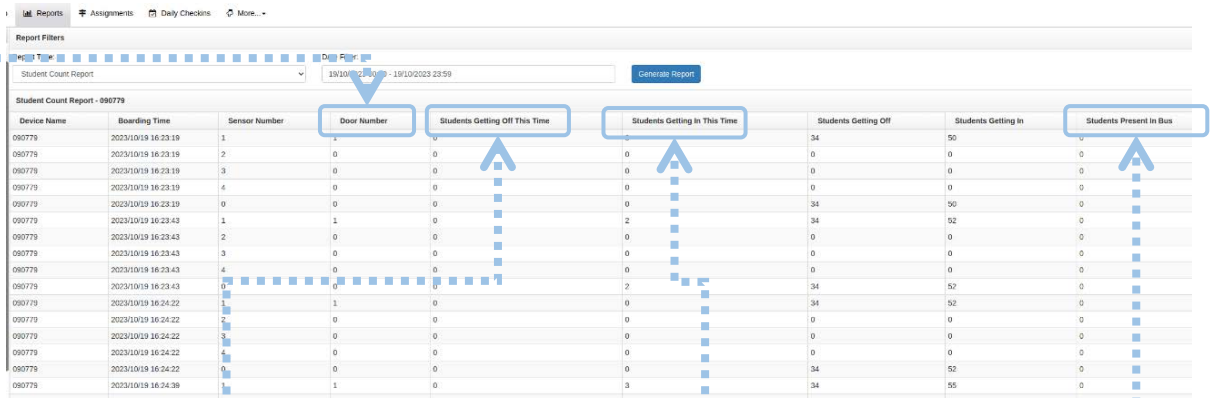
RS485

LAN

ASPC102

# Function Presentation

passenger flow Report

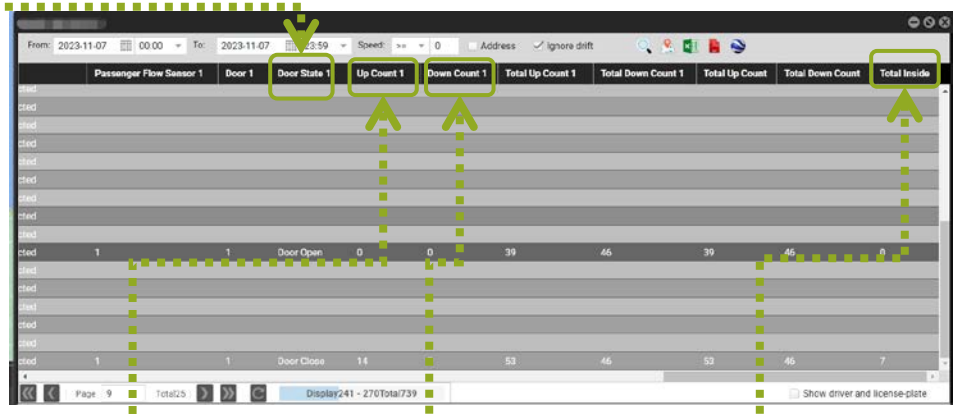



Students getting off

Students getting in

Door number

Students present in bus



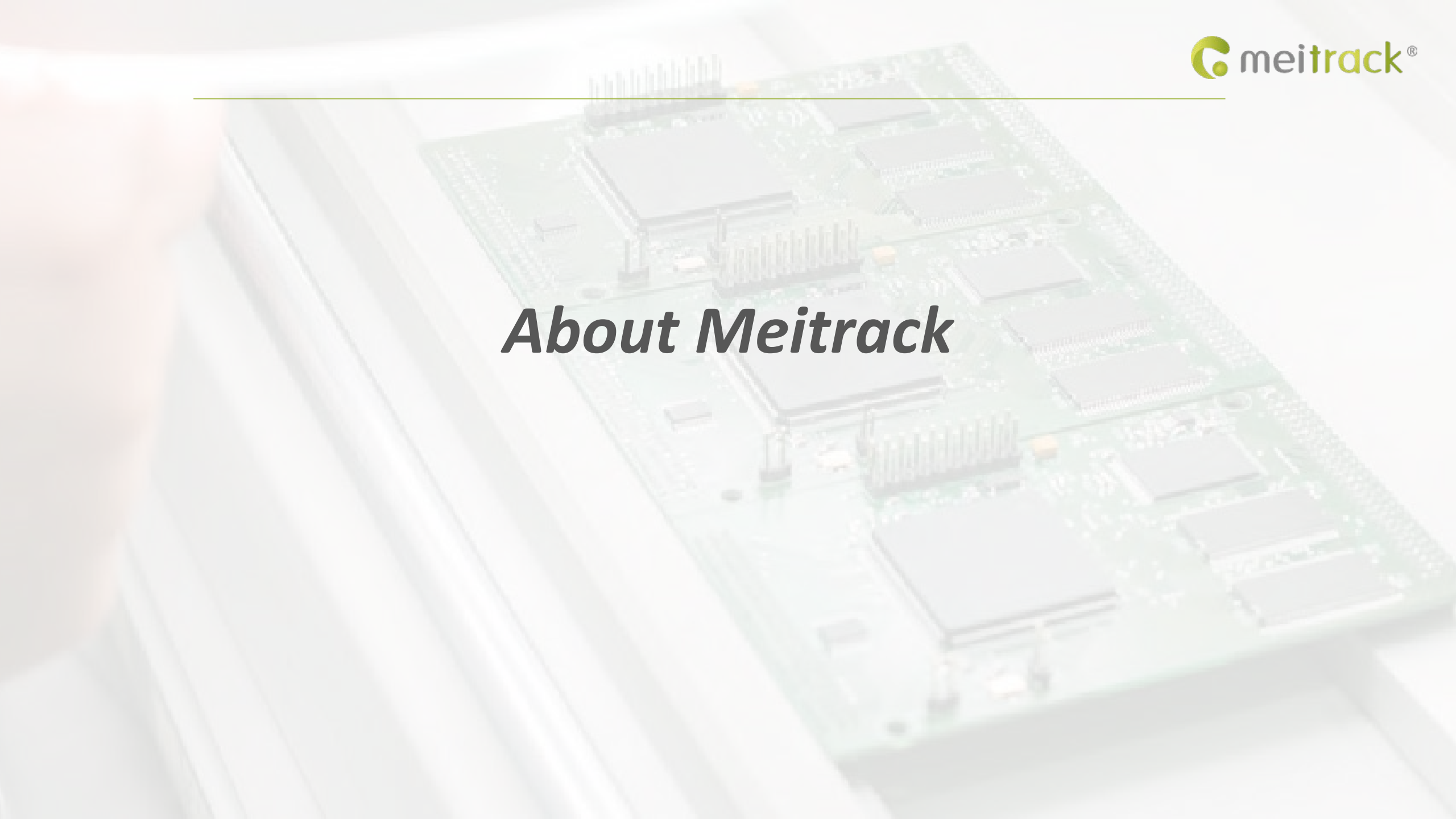

Up count

Down count

Total inside

Door state

According to the passenger flow sensor data uploaded by the device, the platform can generate a statistical report of the passenger flow of each school bus , which can calculate the current number of students and the number of students getting on and off each time, so as to prevent students from being left on the school bus.



# About Meitrack

# Why Meitrack

## Professional

Meitrack has been continuously developing in the GPS field for 20 years, the stability and functionality of the products have been tested by the market for a long time

## Customizability

To provide customers with the functional customization to meet the needs of the project, it is not only a sense, but also a capability

## Good Service

Meitrack's aim has always been to focus on the customer and to provide the highest quality service

## Innovation consciousness

We are not afraid to push our limitations and are willing to innovate to adapt to the changing markets

meitrack™ | THANKS

**www.meitrack.com**
Meitrack Group
Tel：0755- 83462818
Fax：0755-23832013
E-mail: info@meitrack.com
Website：http://www.meitrack.com
Address：international Internet Finance Pioneer Park, No 1, Taohua Rd, Futian Free Trade Zone, Shenzhen, China. 518038