

FOOD DISTRIBUTION FLEET · ARDBOX ANALOG

Two routes, one unit. GPS shows where time goes.

Speeds, stops and routes from every truck, sent over GPRS to the data centre.

[Read the interactive case study online ›](#)

Schematic illustration

**2**

test routes with very different profiles

3,500

kg: the small vehicle on the local route

2

stops on the long route, at two distribution centres

1

standard unit for the whole fleet

THE CHALLENGE

A growing fleet. Busy platforms. Less room to waste time.

The vehicle fleet of the customer grew a lot over the last decade, with a large sales network behind it. The geolocation of the vehicles, the kilometres they travel and the downtime have a direct impact on costs and on the quality of the service. To stay competitive, the company had to improve fleet management with new technology.

01

A fleet that grew

More vehicles and a large sales network. The company needed the location, heading and speed of each vehicle on a server, visible at headquarters.

02

Large logistics platforms

Loading and unloading at large logistics platforms changed how trucks work. Some of these centres need a scheduled arrival.

03

Pedestrian areas

Some deliveries go into pedestrian areas where goods are unloaded. Access to them changed too.

04

Working hours by law

The law requires the control of working hours. Fleet data can complement the records of the working day.



One unit for every vehicle

The team defined one standard product for the whole fleet, sized for the inputs, outputs and accessories it needs, with room to grow.

HOW IT WORKS

Three loops: track, compare, arrive.

Loop 1 - Track the vehicle

GPS gives the speed, the stops and the route.

Each unit gets the location, heading and speed of its vehicle and sends them to a server with its database. From the GPS data, the company analyses speeds, routes, types of driving and stops, to improve productivity, save fuel and work more efficiently. In the panel, play a route and see how the stops are counted. A typical way to do it: count a stop when the speed stays near zero for a set time.

- Location, heading and speed of each vehicle
- Speeds, routes, types of driving and stops
- GPS accuracy and amount of data: more than enough

Loop 2 - Compare two routes

Two vehicles, two very different routes.

After the installation in the whole fleet, the first units were prepared in two kinds of vehicles. A small vehicle (3,500 kg) on a very local route, with many stops and many openings and closings of the trailer. A large vehicle on a much longer route, with only two stops at two large distribution centres. The behaviour is very different, but in both cases the data shows patterns that allow better routes. Switch the route in the panel.

- Local route: many stops, many trailer openings
- Long route: two stops, many kilometres
- Patterns in both cases to improve the routes

Loop 3 - Arrive on time

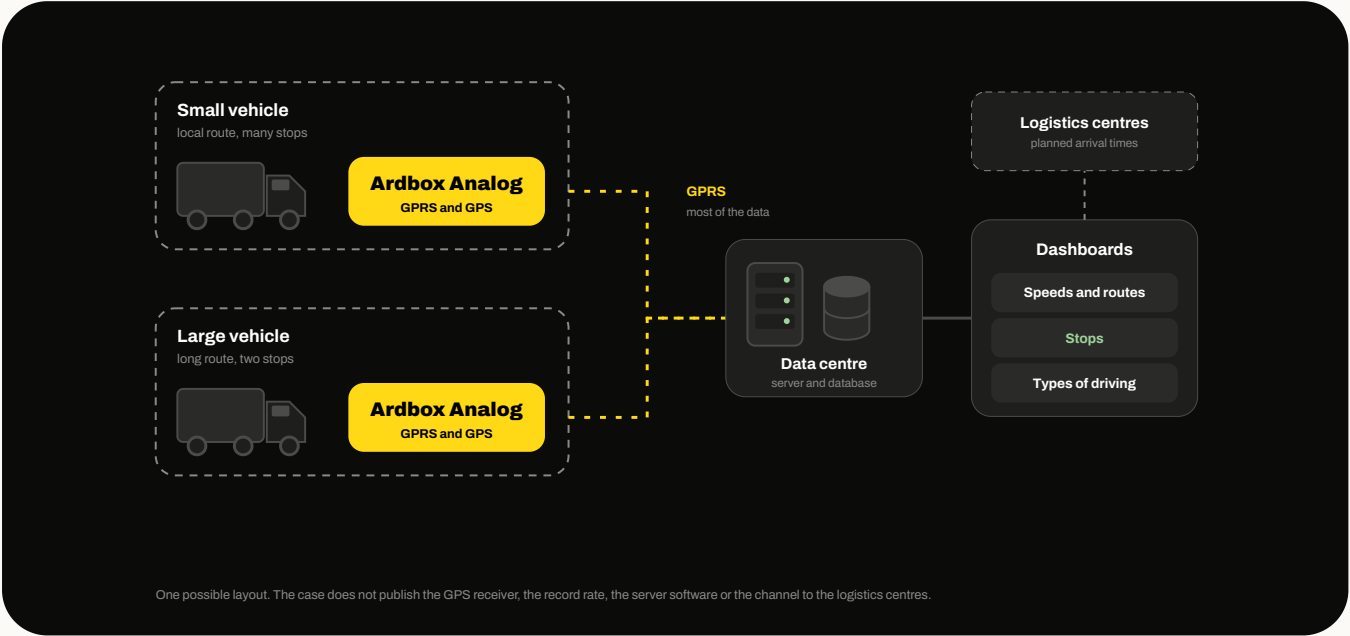
Position data helps the logistics centre plan the arrival.

Some logistics centres are so large that the arrival must be scheduled. With control of the vehicles, the company talks with the logistics centres and meets the planned times, so trucks and drivers lose less time at the loading and unloading platforms. The company also changes routes in real time to avoid accidents, road works or congestion. A typical way to do it: estimate the arrival from the distance left and the average speed, and warn the centre when the slot is at risk.

- Communication with the logistics centres
- Planned times that can be met
- Real-time route changes to avoid accidents, road works or congestion

How does GPS data from a fleet reach the people who plan the routes?

Every vehicle carries the same unit: an Ardbox Analog with GPRS and GPS. It gets the position and the speed, keeps some data on board and sends most of it over GPRS to the data centre. The software chosen by the company turns it into dashboards for each need, and the company uses the positions to agree arrival times with the logistics centres.



Signals and data

Data	Between	Type	Purpose
Position and speed	GPS → Ardbox Analog	GPS	Location, heading and speed of each vehicle
Fleet data	Ardbox Analog → data centre	GPRS	Most of the data, for analysis and decisions in real time. Some data stays on board
Route analysis	Data centre	Software	Speeds, routes, types of driving and stops. Software chosen by the company
Dashboards	Data centre → headquarters	Screen	Control panels adapted to each need
Arrival planning	Company → logistics centres	Contact	Planned times that can be met. Channel not published
Route changes	Company → driver	Real time	Avoid accidents, road works or congestion. Channel not published

Ardbox Analog with GPRS, in every vehicle.



ARDBOX Analog ARDUINO based PLC

A compact industrial PLC built on an original Arduino Leonardo, with 10 inputs and 10 outputs in a 45 mm DIN rail housing. GPRS/GSM is one of the communication versions of the family. In each vehicle it gets the GPS data, keeps some data on board and sends the rest to the data centre.

Role	GPS data, local data, GPRS link to the data centre
Inputs	10: 8 analog/digital (0-10 V), 2 digital optoisolated
Outputs	10: 7 analog/digital/PWM (0-10 V), 3 digital optoisolated
Comms	RS-485, RS-232, TTL serial, I2C, SPI. GPRS/GSM version in the family
Power supply	12 to 24 Vdc
Mounting	DIN rail TS35, IP20, 45 mm wide

The case names the "Ardbox Analog GPRS with GPS" from the 20 I/Os family. The image and the link show the ARDBOX Analog ARDUINO based PLC; the GPRS version is in the Ardbox HF+ GPRS family datasheet. The case does not publish the GPS receiver or how it connects.

[See the Ardbox Analog ›](#)

The same unit everywhere

One standard product in the whole fleet. Every vehicle sends the same data, so routes can be compared.

Enough GPS data

One doubt was the GPS tracking. In the test, the accuracy and the amount of data were more than enough.

Quick to install

The sensors and the antennas went in very quickly, with no effect on the trailer or the tractor. The vehicle had an extra installation for the power of the PLC.

Room to grow

The I/O of the Ardbox Analog meet the needs and allow growth later without changing the installed hardware.

Dashboards for each need

The software chosen by the company handles the data quickly and shows control panels for each need.

More than routes

The company reports better driver and vehicle safety, lower consumption, records that complement the working day, savings on insurance, and customers who get their deliveries sooner and on time.

SIMILAR FLEET?

Tell us your vehicles and your routes. An engineer will answer.

Tell us how many vehicles you have, what kind of routes they drive, what you want to learn from the data (stops, speeds, arrival times, working hours), which software must receive it, and which mobile networks you have on your routes. We will tell you which controller fits and how to connect it.

READ IT ONLINE

industrialshields.com/fleet-route-efficiency-case-study

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