

EARLY COST ESTIMATE | 28 JULY 2026

Car Fleet Control Cost and delivery outlook

A step-by-step budget and delivery plan for a vehicle tracking and monitoring system in Kuwait - from one properly reviewed car test to a small first factory batch.

IMPORTANT NOTE

This is an estimate,
not a supplier quote

The current photos show an early Arduino Uno experiment. The estimate assumes that a smaller protected device will be designed later.

01 EXECUTIVE SUMMARY

Our most likely estimate is 16-20 months and KWD 354,000

A working system can be tested in one authorised car earlier: 7-9 months after about KWD 92,000 has been spent.

ONE-CAR TEST

KWD 92k

7-9 months; total spent so far

READY FOR 50-100 UNITS

KWD 354k

16-20 months; total

FACTORY COST AT 1,000

KWD 56

about GBP 138 per device

MONTHLY COST AT 1,000

KWD 3.07

about GBP 7.50 per vehicle

01

Approve the budget in stages. Continue only if the one-car test proves acceptable battery use, location, alerts and reliability.

02

Making more units lowers the price: estimated factory cost falls from about GBP 206 each at 100 units to GBP 99 at 10,000.

03

A future feature that prevents a parked car from starting needs separate safety and legal work. It is not included here.

02 POSSIBLE PROTOTYPE

What the first protected device could look like

The uploaded photographs show early table-top experimentation. This image illustrates a possible next step, not a finished or proven product.



Illustrative concept only. Final size, case, connector and mounting method depend on engineering tests and the selected vehicle.

1

A trained installer connects the unit safely inside the vehicle.

2

It records location, movement and whether the device is working correctly.

3

It securely sends the information to the phone-friendly dashboard.

Monitoring only - it would not control or stop a moving vehicle.

03 WHAT THE ESTIMATE COVERS

The first product watches and reports; it does not control a moving car

It includes satellite location and movement sensors that work across many vehicles, plus extra computer-connection testing for one chosen vehicle model.

INCLUDED

Included now

- Live location, journey history, chosen-area alerts and driving-event alerts
- Checks for lost power, tampering, lost signal and unsent information
- Secure mobile connection, safe software updates and a phone-friendly dashboard
- Extra vehicle-computer testing for one carefully chosen vehicle model

CONDITIONAL

Depends on the vehicle

Each additional vehicle family: GBP 15k-75k and 1-3 months to research, connect and test the information that vehicle allows us to read.

Seatbelt, light, indicator and door information cannot be promised for every vehicle.

EXCLUDED

Not included

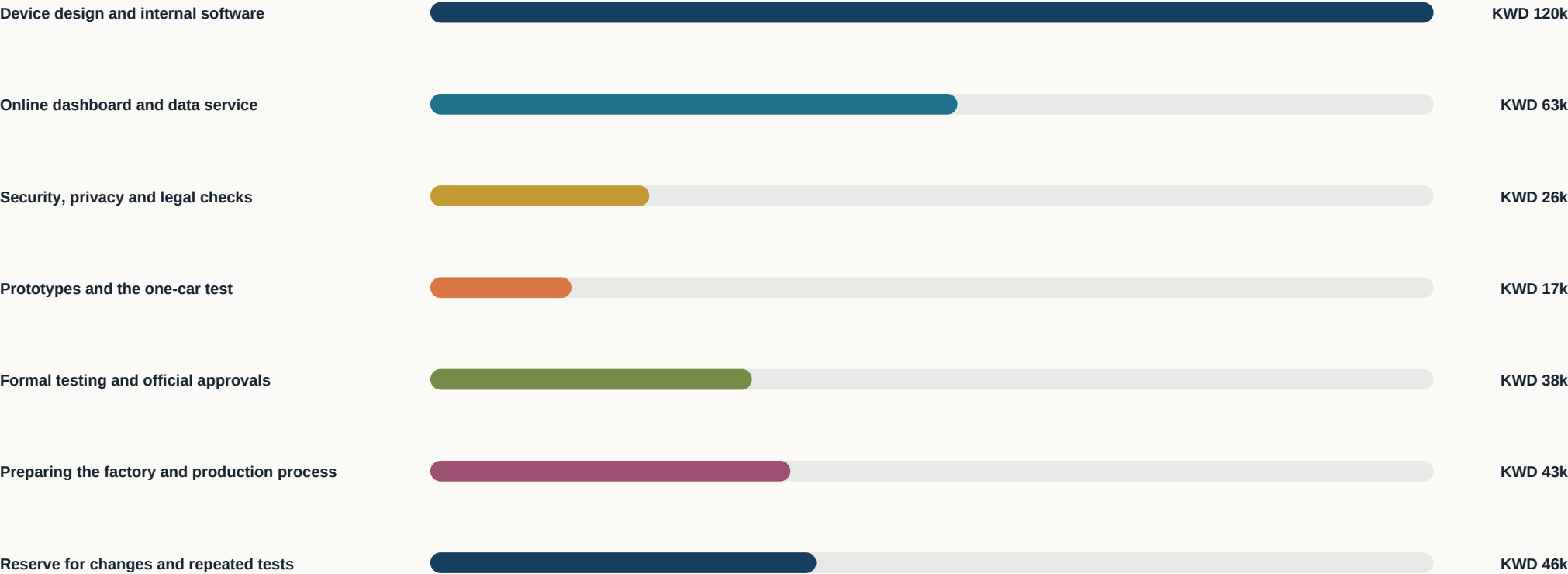
- Stopping a moving engine, forcing a route home or blocking the next start
- A promise that every car provides seatbelt, light, indicator or door information
- Finished stock for sale, taxes, import duty, financing or day-to-day business cash
- Advertising, sales costs, distributor profit and the final customer price

Preventing a parked car from starting: separate GBP 0.5m-2m+ / 12-24+ month safety project; never stop a moving engine.

04 ONE-OFF DEVELOPMENT BUDGET

Where the estimated KWD 354,000 goes

The most likely total is USD 1.15m / KWD 354k / about GBP 865k, including money set aside for expected changes and repeated tests.



LOWER-COST CASE KWD 200k-262k | 12-14 months

Few problems or repeat tests

MOST LIKELY KWD 308k-400k | 16-20 months

Recommended estimate

HIGHER-COST CASE KWD 493k-678k | 24-30 months

More redesigns or wider scope

05 SUGGESTED COMPANIES TO APPROACH

Three candidates for the first quotation; two benchmarks for later scale

These are well-established automotive electronics manufacturers, not appointed suppliers. The cost estimate does not change until a manufacturer provides a written price.

RECOMMENDED FIRST STEP

Send the same request to TT Electronics, Zollner and Sanmina: setup cost; prices at 100, 1,000 and 10,000; minimum order; lead time; the exact factory certificate; testing, repairs and warranty.

FIRST QUOTATION CANDIDATES

TT Electronics**CLOSEST PUBLISHED PRODUCT MATCH**

Already publishes a case study about manufacturing vehicle-tracking units that measure mileage, speed, acceleration and braking.

Ask if an automotive-approved factory will quote the 50-100-unit trial.

Zollner**PROTOTYPE-TO-PRODUCTION CANDIDATE**

Offers development, prototypes, electronics and cable assembly, complete-device production and testing, including small batches.

Ask for its new-product team and the exact factory proposed.

Sanmina**SMALL-BATCH-TO-SCALE CANDIDATE**

Supports prototypes, small mixed batches and larger production, including circuit boards, cables and complete automotive electronics.

Ask it to separate factory set-up charges from the unit price.

LATER-SCALE BENCHMARKS

Jabil**GLOBAL SCALE BENCHMARK**

Provides automotive design, testing, supply-chain and manufacturing services, including connected and telematics products.

Use it to test the route to high volume; the first order may be too small.

Flex**GLOBAL SCALE BENCHMARK**

Offers automotive design, rapid prototypes, manufacturing and supply-chain support through a large international network.

Approach when yearly demand and the funded route to scale are clearer.

PARTS TO COST FIRST

Arduino Pro prototype; NXP processor; TI vehicle link; ST movement sensor; Quectel mobile/location; TE connector.

INDEPENDENT TEST BIDS

UL, TUV Rheinland, DEKRA and SGS. Confirm Kuwait acceptance before appointment.

06 DELIVERY TIMETABLE

Testing and approvals are the main reason this takes 16-20 months

Several areas of work overlap. The device is not used in a car until safety, privacy, security and installation checks allow a monitoring-only test.



07 COST PER DEVICE AT DIFFERENT ORDER SIZES

Estimated cost to make one device falls as more are ordered

At 1,000 units, allow about GBP 138 / KWD 56 to make, test and pack each device, before tax, import duty and professional installation.

100 units

Likely range KWD 72-102



Professional installation allowance GBP 175 | Estimated installed total KWD 156

KWD 84

GBP 206 to make one

1,000 units

Likely range KWD 47-68



Professional installation allowance GBP 130 | Estimated installed total KWD 110

KWD 56

GBP 138 to make one

10,000 units

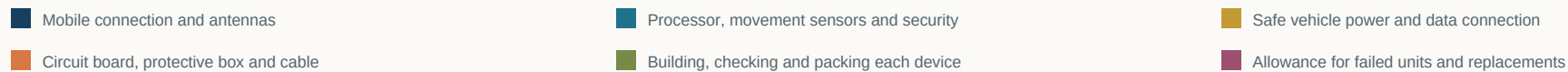
Likely range KWD 33-51



Professional installation allowance GBP 100 | Estimated installed total KWD 81

KWD 41

GBP 99 to make one



The factory cost includes electronic parts, the protective box, fused cable, assembly, device setup, sensor checks, testing, packaging, incoming delivery and an allowance for failed units and warranty replacements.

08 MONTHLY RUNNING COST FOR EACH VEHICLE

At 1,000 vehicles, allow about KWD 3.07 for each vehicle each month

This covers the SIM card, online system, saved journeys, maps, security checks, system monitoring and a modest amount of human support.

100 vehicles using the service

cost for each vehicle, each month

**KWD 4.71**

GBP 11.50 / month

1,000 vehicles using the service

cost for each vehicle, each month

**KWD 3.07**

GBP 7.50 / month

10,000 vehicles using the service

cost for each vehicle, each month

**KWD 2.05**

GBP 5.00 / month

 SIM card and mobile data

 Online service, saved journeys, maps and security

 System monitoring and customer support

ASSUMPTION BASIS

This allows for 25-100 MB of mobile data per vehicle each month, journey history, alerts, device checks, secure storage, backups and normal support. The customer selling price and profit are not included.

09 WHAT COULD CHANGE

Six things could increase or reduce the cost and timetable

Written prices, laboratory results and real vehicle tests will gradually replace these estimates with facts.

01 The final device design and written supplier prices

02 Mobile-network performance and extreme heat inside parked cars in Kuwait

03 How each vehicle model connects and how long installation takes

04 Which official tests are required and whether any must be repeated

05 How much storage, mapping and customer support are actually used

06 Exchange-rate changes, minimum supplier orders and unsold stock

WHAT WILL MAKE THE ESTIMATE MORE ACCURATE?

A full parts quote; Kuwait mobile-network and heat tests; measured installation time; an agreed list of official laboratory tests; a completed one-car report; independent safety and security reviews; written Kuwait advice.

10 FUNDING RECOMMENDATION

Invest in four stages and check the results before continuing

The first useful commitment funds a properly reviewed one-car monitoring test. Spend on factory preparation only if that test supports continuing.

1

TARGET MONTH 3-4

Working table-top device and demonstration dashboard

Location and movement information reaches a dashboard using simulated driving data.

+KWD 40k

KWD 40k total so far

2

TARGET MONTH 7-9

Completed monitoring test in one authorised car

Measured results for battery use, location, saved uploads and false alerts.

+KWD 52k

KWD 92k total so far

3

TARGET MONTH 12-15

Near-final design and formal testing

Near-final design, factory checks and early laboratory tests are completed.

+KWD 154k

KWD 246k total so far

4

TARGET MONTH 16-20

Ready for a first factory trial of 50-100 units

Kuwait approval documents, a factory trial and installer testing support the next decision.

+KWD 108k

KWD 354k total so far

RECOMMENDED FIRST-STAGE BUDGET

KWD 92k total

Use this to complete the reviewed one-car monitoring test over 7-9 months. Do not commit the full factory-preparation budget on day one.

PLAIN-LANGUAGE GUIDE

Eight useful translations

The presentation uses the ordinary words first. These are the technical names an engineer or supplier may still use.

GNSS / IMU**GPS location and movement sensors**

Shows where the vehicle is and detects acceleration, braking, turning and impacts.

DIAGNOSTIC INTERFACE**Vehicle-specific connection**

A safe link to the vehicle computer. The available information differs by model.

ENGINEERING PROTOTYPE**Early prototype**

A first model used to learn and demonstrate the idea. It is not ready for a car.

DVT DEVICE**Near-final test device**

A design close to production that is used for formal safety and performance tests.

PVT BUILD**Small factory trial**

The first 50-100 units made with the intended factory process before normal sales.

CITRA TYPE APPROVAL**Kuwait communications approval**

Official permission for this model of radio-connected device to be supplied in Kuwait.

COGS**Factory cost per device**

The direct cost to make, test and pack one device before tax and installation.

CONTINGENCY**Reserve for unexpected work**

Money set aside for changes, failed tests and work that must be repeated.

APPENDIX ASSUMPTIONS AND SOURCES

How the estimate was built

Example component prices, the exchange rates used and official approval references are separated from staff, factory and installation estimates that still need written quotations.

01 Central Bank of Kuwait exchange rates - 28 July 2026

Fixed GBP/USD-to-KWD planning conversion

<https://www.cbk.gov.kw/en/monetary-policy/market-operations/exchange-rates>

02 CITRA new type approval service

KWD 50 published fee, required dossier items and 20-business-day service duration

<https://www.citra.gov.kw/sites/en/Pages/ServiceDetails.aspx?SrcID=44>

03 Arduino Portenta Proto Kit ME official store

Prototype-kit composition and EUR 438 retail anchor

<https://store.arduino.cc/products/portenta-proto-kit-me>

04 Quectel EG915Q LTE/GNSS - DigiKey UK

Cellular/GNSS component price anchor; not a final design selection

<https://www.digikey.co.uk/en/products/detail/quectel/EG915QAFLG-N03-SGNSA/26239548>

05 NXP S32K312 automotive MCU - Mouser UK

Automotive MCU price anchor

<https://www.mouser.co.uk/ProductDetail/NXP-Semiconductors/S32K312NHT0MPAST>

06 ST ASM330LHHX automotive IMU - DigiKey UK

Automotive IMU price anchor

<https://www.digikey.co.uk/en/products/detail/stmicroelectronics/ASM330LHHXTR/16399080>

07 TI ISO1042-Q1 isolated CAN transceiver - DigiKey UK

Isolated CAN interface price anchor

<https://www.digikey.co.uk/en/products/detail/texas-instruments/ISO1042QDWQ1/9771012>

08 1NCE connectivity pricing

Low-usage IoT connectivity benchmark; Kuwait/operator fit remains unverified

<https://www.1nce.com/en-eu/1nce-connect/pricing>

09 AWS IoT Core pricing

Cloud message-ingestion benchmark

<https://aws.amazon.com/iot-core/pricing/>

10 ISO 16750-1:2023 overview

Environmental test-planning scope for vehicle electronics

<https://www.iso.org/standard/77578.html>

11 UNECE Regulation No. 10 - electromagnetic compatibility

Automotive EMC planning framework; exact Kuwait applicability requires advice

<https://unece.org/transport/vehicle-regulations-wp29/standards/addenda-1958-agreement-regulations-0-20>

CALCULATION BASIS

This estimate combines about 62 months of specialist work with prototype parts, laboratory testing, factory preparation and a 15% reserve for unexpected redesign or repeated testing. Per-device costs use current example component prices. Obtain written supplier, installer, laboratory and mobile-network quotations before committing funds.