Vehicle Tracking API

Specifications

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Vehicle tracking system

The solutions need to be able to track vehicles position using GPS navigation. A device emboarded in a vehicle, will communicate with your API to register the vehicle and update its position.

The solutions should use only the following framework;

- .Net Framework 4.7
- .Net Framework 4.8
- .Net Core 3.1
- .Net 5.0

API

Implement a RESTful API to track vehicles location. The device will update the API every 30 seconds with the new location.

1. Register a vehicle
2. Record its position

When the frontend team will implement the backoffice for the vehicle tracking, any authenticated administrator should be able to :

1. Retrieve the current position of a vehicle
2. Retrieve the positions of a vehicle during a certain time, in order to display their journey on a map (maps drawing is out of scope)

Database / scalability

There will be 10,000 vehicles equipped with the device. We need to ensure the solution is scalable and the database correctly designed for that amount of records.

Extensibility

If the customer wants to store more properties (fuel, speed, etc.). How do we extend the data model to support it?

Security

We need to ensure a device or user cannot update the position of another vehicle .

As a backend engineer, your tasks will be to :

- Design the database and data models
- Implement the REST API

As a backend engineer, you will pay special attention to :

- Design
- Security
- Performance
- Scalability
- Maintainability
- Documentation: None, unless mathematical algorithms

Any assumptions, specific reason of a particular choice must be described in the code.

Delivery

You can return us a ZIP containing:

- Visual studio solution
- README (markdown) how to run the solution locally (dependencies, setup, …)

Bonus

When an admin retrieves the GPS position of a vehicle, the API should return the name of the matching locality, using Google Maps APIs.