

Kolegij Internet stvari:  
**Seqjurit**

# ANTI-THEFT DEVICE

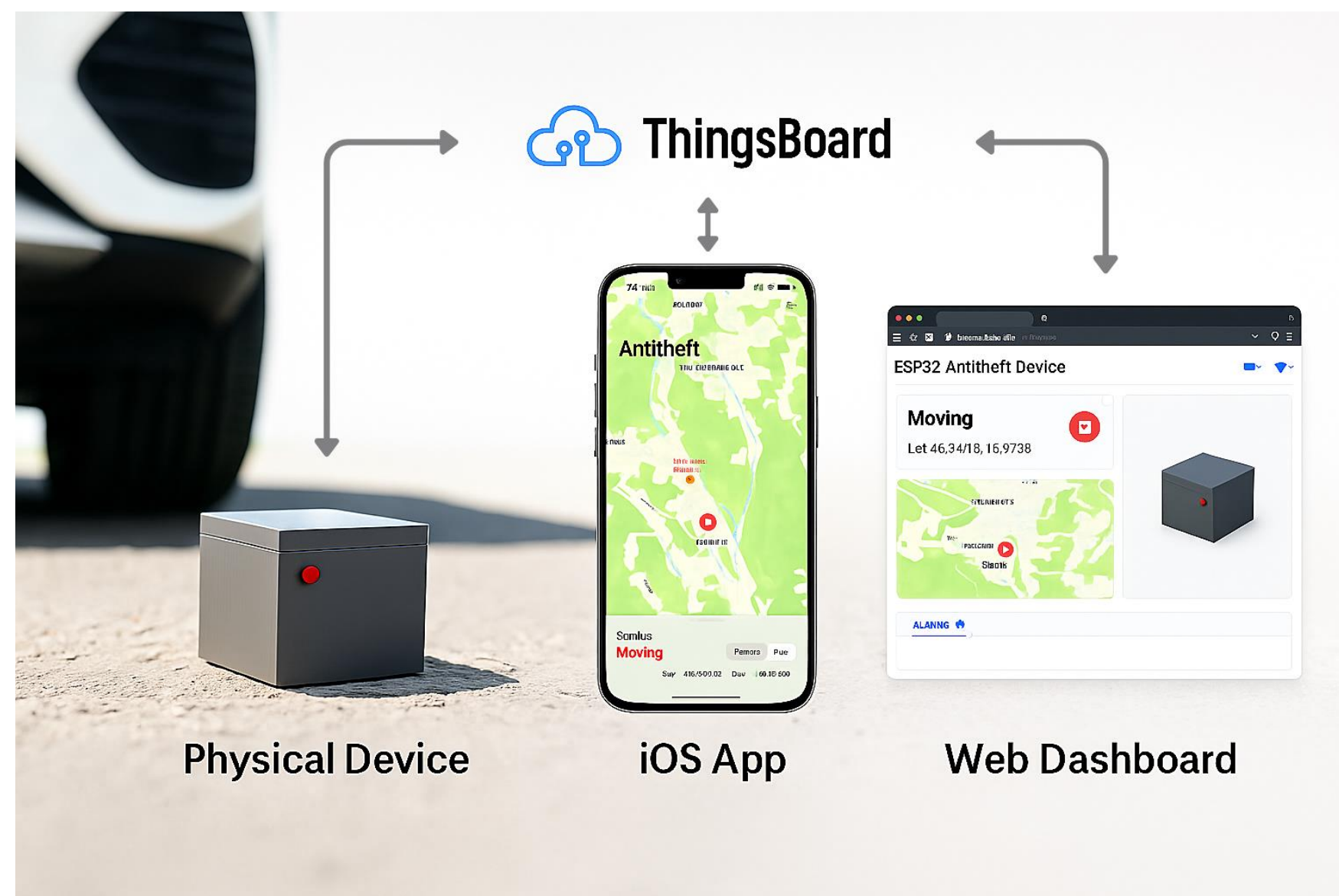


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Katarina Mikulić, Luka Žaja





# Sadržaj



Domena primjene \_\_\_\_\_ **01**

Opis rješenja \_\_\_\_\_ **02**

ThingsBoard \_\_\_\_\_ **03**

Uređaji \_\_\_\_\_ **04**

Web aplikacija \_\_\_\_\_ **05**

iOS aplikacija \_\_\_\_\_ **06**

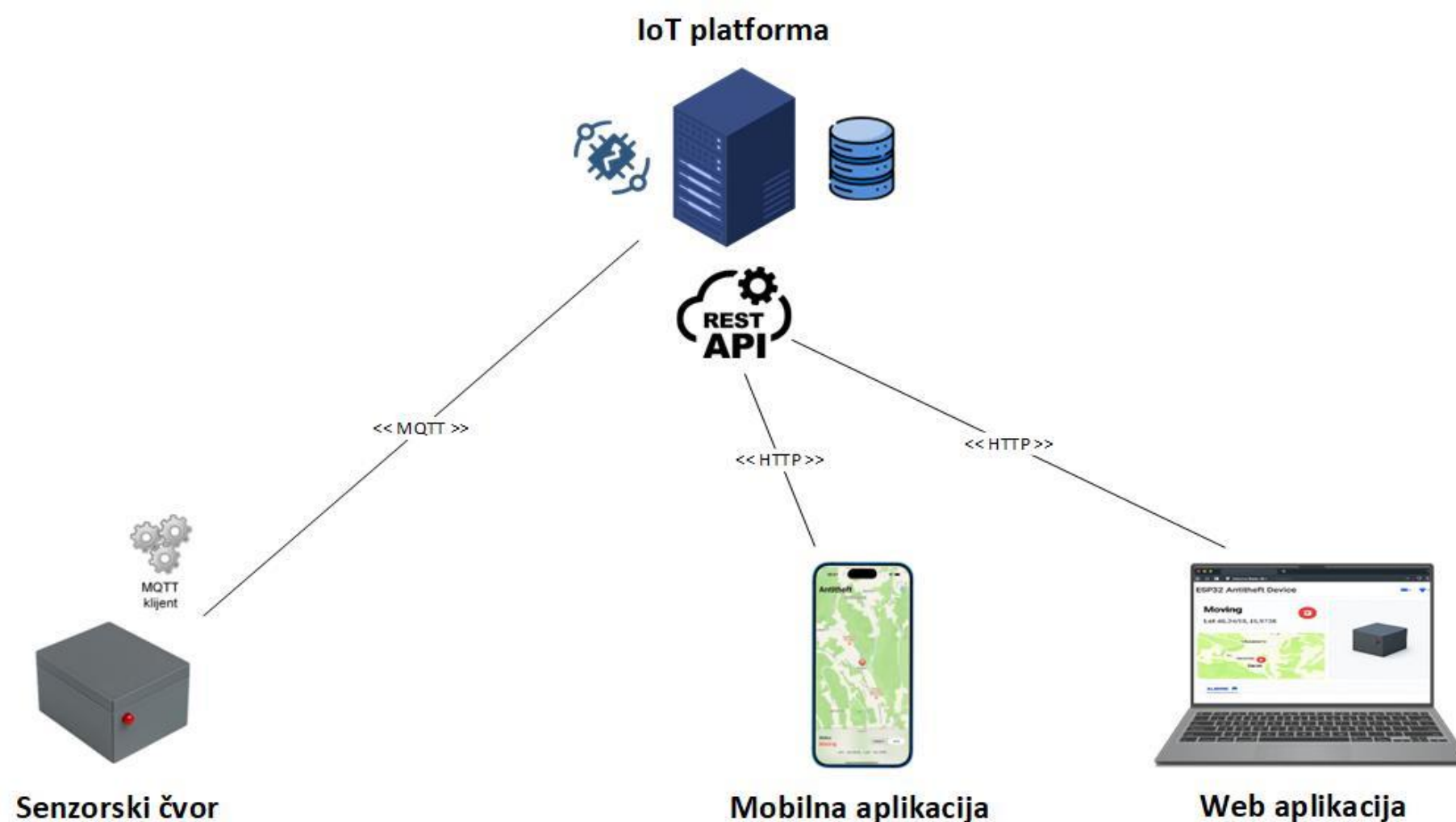
# Domena primjene

- **Problem** – sve veća potreba za zaštitom vozila
- **Nedostatak** – ograničeni i neefikasni alarmi
- **Seqjurit**i – IoT rješenje
- **Cilj** – omogućiti trenutne obavijesti i kontrolu nad vozilom





# Opis rješenja



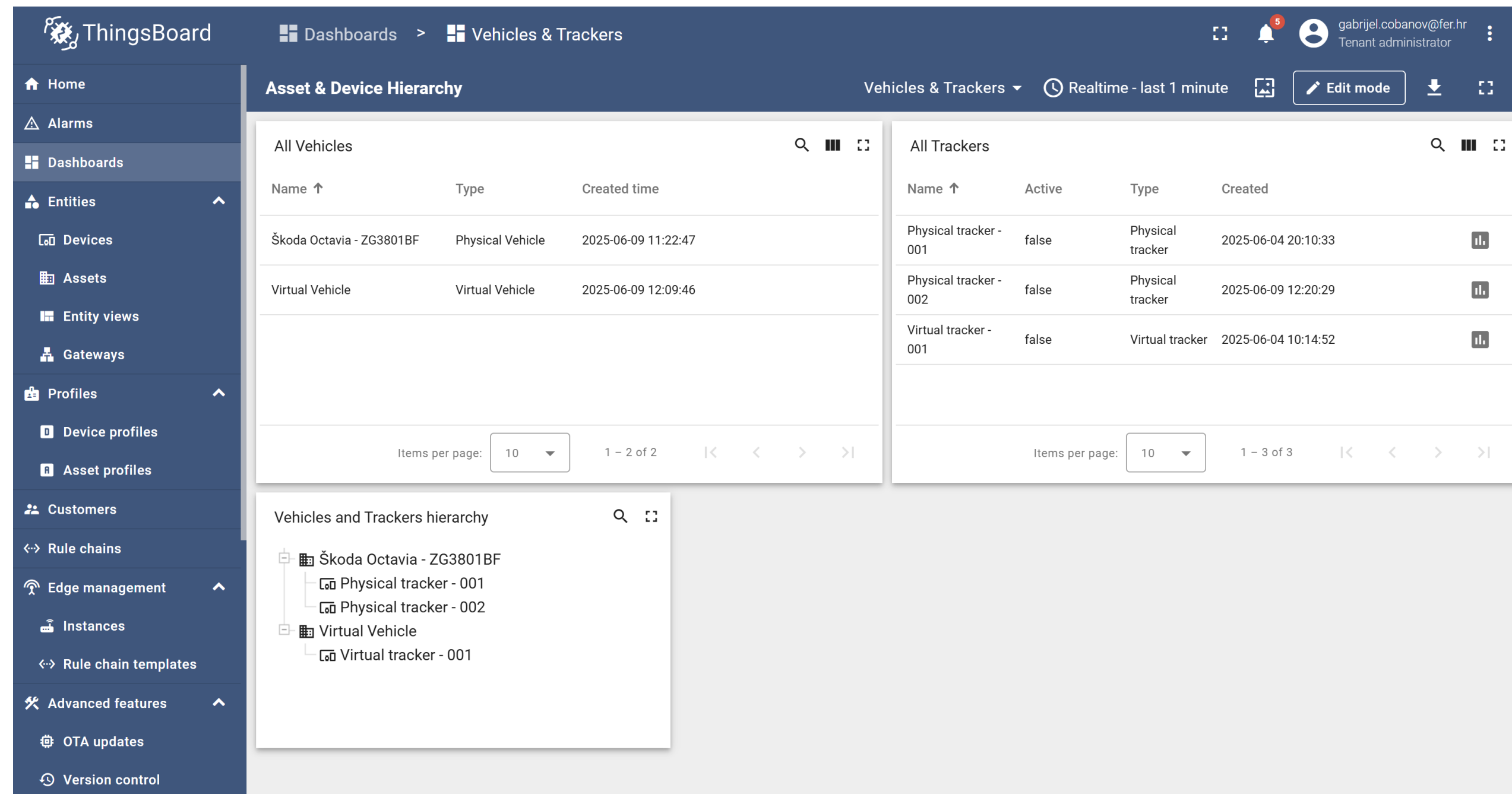
- **Fizički uređaj** – sustav za detekciju pokreta i lokalno alarmiranje
- **ThingBoard** – centralna točka za prikupljanje, obradu i distribuciju podataka
- **Korisničke aplikacije** – Sučelje za nadzor i kontrolu
- **Protokoli** – MQTT (over TCP/IP), HTTP



# ThingsBoard

- **Uloga** – IoT platforma za povezivanje, prikupljanje i obradu podataka s uređaja

- **Ključne funkcionalnosti:**
  - Upravljanje uređajima
  - Prikupljanje podataka
  - Daljinsko upravljanje
  - *Rule chains*
  - *Dashboards*



ThingsBoard Dashboards > Vehicles & Trackers

gabrijel.cobanov@fer.hr  
Tenant administrator

### Asset & Device Hierarchy

Vehicles & Trackers Realtime - last 1 minute Edit mode

All Vehicles		
Name ↑	Type	Created time
Škoda Octavia - ZG3801BF	Physical Vehicle	2025-06-09 11:22:47
Virtual Vehicle	Virtual Vehicle	2025-06-09 12:09:46

Items per page: 10 1 - 2 of 2

All Trackers			
Name ↑	Active	Type	Created
Physical tracker - 001	false	Physical tracker	2025-06-04 20:10:33
Physical tracker - 002	false	Physical tracker	2025-06-09 12:20:29
Virtual tracker - 001	false	Virtual tracker	2025-06-04 10:14:52

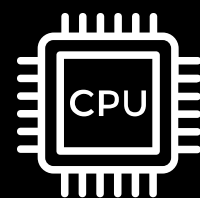
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### Vehicles and Trackers hierarchy

- Škoda Octavia - ZG3801BF
  - Physical tracker - 001
  - Physical tracker - 002
- Virtual Vehicle
  - Virtual tracker - 001

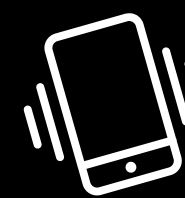


# FIZIČKI UREĐAJ



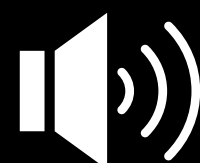
## ESP32-C6

Povoljno i praktično "All-in-one" rješenje



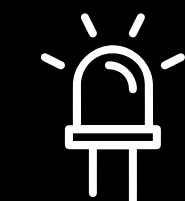
## MPU6050 IMU

Praćenje pokreta pomoću žiroskopa s 3 osi



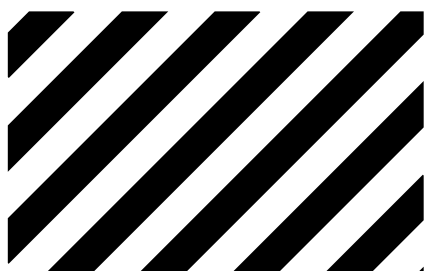
## KY-012 Buzzer

Zvučno alarmiranje pri detekciji pokreta



## LED dioda

Vizualno alarmiranje crvenom led diodom





# VIRTUALNI UREĐAJ



```
@PostMapping(🌐"/register")  
public ResponseEntity<String> registerSensor()  
  
@PostMapping(🌐"/arm")  
public ResponseEntity<String> armSensor(@Requ  
  
@PostMapping(🌐"/disarm")  
public ResponseEntity<String> disarmSensor(@R
```

Praktičan API za svu komunikaciju

```
public class UserVariables { 11 usages  
    // time is in seconds  
    public static final int minWakeupTime = 4; // mini  
    public static final int maxWakeupTime = 5; // maxi  
    public static final int delayBetweenSending = 3; /  
    public static final String routeDataDir = "src/mai  
    public static final List<String> routeFileNames =
```

Jednostavna i centralizirana korisnička  
konfiguracija parametara

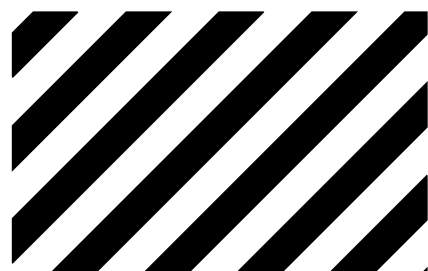


## Portabilno

.jar omogućuje jednostavnu  
izmjenu testnog okruženja

```
2025-06-11T08:14:36.892+02:00  
Sensor: senzor1 registered  
Sensor: senzor2 registered  
Sensor: senzor345 registered  
Sensor: tracker-01 registered
```

Paralelan rad više senzora  
istovremeno





# Web aplikacija



ANTITHEFT

Welcome, bob!

Logout

Alarm Control

Status: **Disarmed**

Arm

Telemetry History (Last 5 Readings)

Timestamp	Latitude	Longitude	Armed	Motion
6/10/2025, 12:48:52 AM	45.865002	15.998000	No	No
6/10/2025, 12:48:52 AM	45.865002	15.998000	No	No
6/10/2025, 12:48:52 AM	45.865002	15.998000	Yes	No
6/10/2025, 12:48:52 AM	45.865002	15.998000	Yes	No
6/10/2025, 12:48:52 AM	45.865002	15.998000	Yes	No

Device Location

IoT Dashboard Login

Username

Password

Login





# ios aplikacija

