Easy prototyping with ProtoPie & VSS
Can a small startup from Malmö change how software is built in automotive?

In this industry of giants everybody talks about the software transformation, but few actually build tools that reduce complexities.
Quick iteration speed increases work motivation and excitement. Infrastructural and bureaucratic barriers to deploying code and launching features are some of the most common and frustrating reasons that engineers cite during interviews for why they’re leaving their current companies.
RemotiveLabs Platform

Empower vehicle software engineers to take ownership over their development environment.

**CLOUD COLLABORATION**
Develop & debug with colleagues & partners.

**IN-VEHICLE**
Simple access to vehicle signals: record + read & write.

**EXTERNAL APPLICATIONS**
Stream curated signals to where you need them!

**TEST RIGS**
Left-shift & build your own test rigs.

**REMOTE ACCESS**
RemotiveBroker

**RemotiveCloud**
Status quo

Existing tools in automotive create cumbersome processes and do not cater for UX engineers & designers.

Left-shift

Try ideas in an easy and flexible way.

RECORDED DATA
Feed from RemotiveCloud as VSS signals to ProtoPie Connect.

LIVE DATA
Connect the Linux based hardware of your choice the vehicle bus as the host of the RemotiveBroker that then feeds real vehicle data to ProtoPie Connect.
From idea to production

- Advanced engineering / prototyping
- Virtual vehicle
- Test rigs CI/CD
- Test vehicle
- Collaborative development

Internally & with third-parties
The challenge

Sharing signal data in automotive is complex and hindering efficient prototyping collaboration.
The solution: RemotiveCloud

A virtual environment for playback, transforming & feeding of signals. Seamless & simple collaboration without touching the hardware.
Some key features

- Share and collaborate on recordings
- Get access to real data
- Fast prototyping, mutual debugging, and functional testing.

Feed recorded signals to your favourite language: Python, Rust, C++, etc.
- Consume, plot or make use of vehicle signals anywhere!

LUA scripting (rename, map, merge or synthesize) signals emitted at custom frequency.
- Produce abstraction layer for AAOS, ProtoPie, Unity, and similar in the expected format (COVESA VSS, AAOS vehicle properties etc).
- Share curated signal sets with external collaborators, hiding proprietary data.

Cloud Console in the browser
- Command line using our CLI.

Upload / playback recordings

Use your language of choice

Transform signals

Operation
DEMO:
Working with recorded data
ProtoPie
Create tomorrow’s digital experiences

remotiveLabs
Collaborate, innovate & get stuff done
Three simple steps to experience live data

1. Record a drive cycle
   RemotiveBroker runs on any Linux/ docker-based hardware including Raspberry Pi & will record all signals from the vehicle.

2. Build your instrument cluster
   Match the signals in the recording in the cloud with instrument cluster - we used a popular prototyping tool called ProtoPie.

3. Experience it live!
   The RemotiveBroker acts as an enabler for the ProtoPie cluster to receive vehicle signals in real-time.
Setup with RemotiveBroker to feed live data to external application.
### Examples to subscribe to signals from an external application

We have a samples repository available in Github for anyone who wants to run code against our code and play around with the signals in this recording. Our repositories have detailed READMEs. Simply check out the instructions down below to get going!

For issues with any of the steps below please use our community discussions on github, [github.com/remotivelabs/support@remotivelabs.com](https://github.com/remotivelabs/support@remotivelabs.com)

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<th>Python</th>
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Instructions about our Protopie bridge-app can be found here: [https://github.com/remotivelabs/remotivelabs-protopie.git](https://github.com/remotivelabs/remotivelabs-protopie.git)

```
$ git clone https://github.com/remotivelabs/remotivelabs-protopie.git
$ cd remotivelabs-protopie
$ npm install
$ echo '{ "subscription": {"Vehicle.Speed": {"namespace": "vss"}}}' > remotivelabs-bridge-app/node_modules/remotivelabs/bridge-app/index.js
$ node src/remotelabs-bridge-app --url https://emil-test-demo-uo7acw3e18be7a39 --config remotivelabs-protopie-config.json
```

### RemotiveLabs GitHub – get started

[https://github.com/remotivelabs](https://github.com/remotivelabs)

**RemotiveLabs + Protopie**

Use our RemotiveCloud together with Protopie and feed real vehicle signals into your prototype.

Read this blog post for a good introduction: [https://www.protopie.io/blog/challenging-the-status-quo-in-automotive-prototyping](https://www.protopie.io/blog/challenging-the-status-quo-in-automotive-prototyping)

**Try it out yourself**

This solution requires [Protopie-Connect](https://www.protopie.io) which in turn requires a Protopie Pro or Enterprise plan.

Disclaimer: This is a fully functional but not yet officially released prototie-connect bridge-app...
Summary – Quick prototyping using real data

Transform signals (LUA)

OEM Proprietary data → Remotive Broker → Easy-to-share format VSS

Developers laptop

ProtoPie

Record a drive cycle, match signals, Experience it live!
Increase speed and reduce risk
With an iterative way of working

Innovate & realize new ideas
With the right people

Software-centric development
With seamless collaboration

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