

RustIEC - Kick-off

Welcome!

RustIEC team

November 24, 2022



ETRO
ELECTRONICS &
INFORMATICS

TODAY

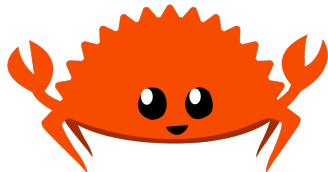
THE PROGRAM

15:00 Tour-de-table and project introduction

15:25 Advantages and disadvantages of Rust

15:55 Crates: Rust's ecosystem

16:25 Closing and networking drink



TOUR-DE-TABLE: WHO ARE WE?

VRIJE UNIVERSITEIT BRUSSEL - SMARTNETS



Smartnets

- ▶ Internet-of-Things
- ▶ Cloud technologies
- ▶ Privacy and security

TOUR-DE-TABLE: WHO ARE WE?

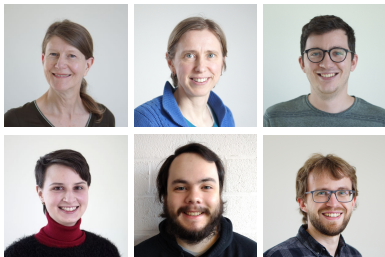
VRIJE UNIVERSITEIT BRUSSEL - SMARTNETS



Kris Steenhaut

TOUR-DE-TABLE: WHO ARE WE?

VRIJE UNIVERSITEIT BRUSSEL - SMARTNETS



An Braeken

TOUR-DE-TABLE: WHO ARE WE?

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Thibaut Vandervelden

TOUR-DE-TABLE: WHO ARE WE?

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Diana Deac

TOUR-DE-TABLE: WHO ARE WE?

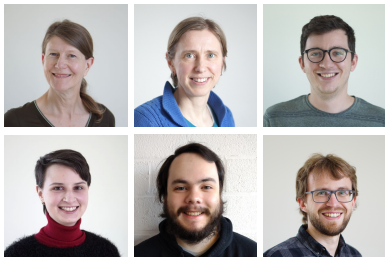
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Robrecht Blancquart

TOUR-DE-TABLE: WHO ARE WE?

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Ruben De Smet

TOUR-DE-TABLE: WHO ARE WE?

KU LEUVEN - DISTRINET



Jorn Lapon

TOUR-DE-TABLE: WHO ARE WE?

KU LEUVEN - DISTRINET



Stijn Volckaert

TOUR-DE-TABLE: WHO ARE WE?

KU LEUVEN - DISTRINET

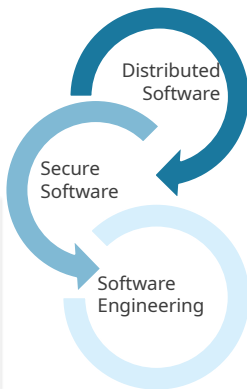


Alicia Andries

DistriNet in a Nutshell

100+ people

15 professors
10 research managers
3 business office
14 postdocs
60+ PhD students



30+ research projects



The recipe?

2 professors

1 research manager

3 postdocs

9 PhD Students



Stijn Volckaert (professor)

Main Expertise:

- Systems Security
 - Exploit mitigations
 - Software diversity
 - Multi-variant execution
 - Automated migration of legacy code to safe language



Jorn Lapon (research manager)

Main Expertise:

- IoT Security
 - Automation of Firmware Security Testing
 - Secure development support tools



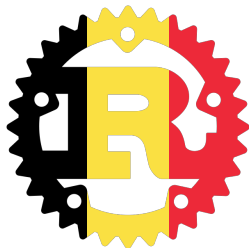
Alicia Andries

- PhD Student
- Researcher on Rustiec

TOUR-DE-TABLE: WHO ARE WE?

BELGIUM RUST USER GROUP

- ▶ 149 members, free events
- ▶ Matrix: `#rust-belgium:rubdos.be`
- ▶ <https://www.meetup.com/Belgium-Rust-user-group/>
- ▶ Videos: https://video.rubdos.be/c/rust_belgium



Who are you?

MASTERS IN MISSION CRITICAL COMMUNICATIONS

OTN Systems

30 years experience in creating industrial network solutions



- **A market leader**

- 1 out of 3 Metro Operators globally
- Most Oil & Gas Majors
- Electricity TSO and DSO
- ITS, Airports, Mining, ...

- **500+ customers in 75+ countries**

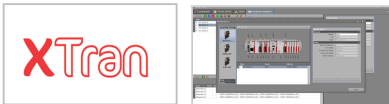
- **17.000 nodes in operations**

- Installed base of more than 500me



Headquartered in Olen, Belgium

XTran: eXcellence in Transport



- **Purpose built MPLS-TP platform**

- First customer deployment in 2014

- **Easy to use Network Management**

- Decoupling data path from control plane
- TDM-like operation

- **Flexible platform, ready for the future**

- High variety of interfaces (legacy, protection)
- Higher bandwidths (40G, 100G)
- Industry relevant standards

ausy **belgium.**



7
sites



1 200+
consultants &
freelancers in IT
& engineering



3
expertise
delivery centres



140+
internal
employees



- site
- site + expertise delivery center





rust in embedded.

- best practices
- ecosystem
- networking





COMmeto

RustIEC

Kick-off meeting

24 November 2022



Dr. Ludo Cuypers

COMmeto



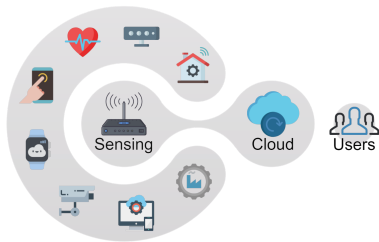
ludo.cuypers@commeto.be



<https://be.linkedin.com/in/ludocuypers>

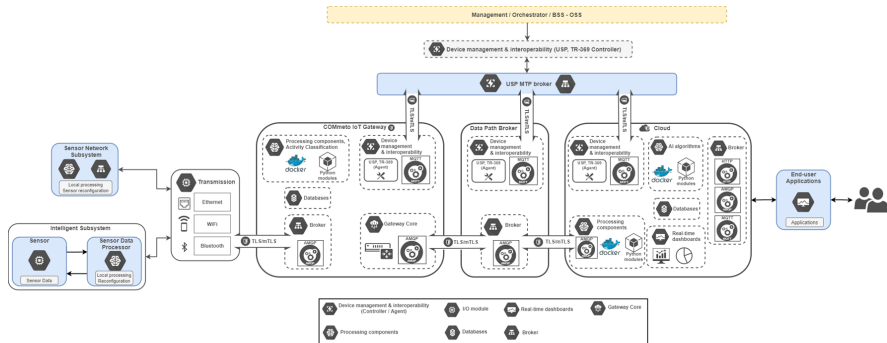
Smart Sensing Systems

Sense - Sync - See



Smart Sensing Systems

Architecture



COMmeto's Interest of RustIEC

Learn about Rust for Internet of Things

- Rust for Internet of Things in general
- Development environment, tools, best practices
- Language specific topics
- Running on small devices (sensors, actuators), wearables, embedded devices, edge computing
- Bare metal possibilities
- Requirements, footprints, execution environments, real-time capabilities, multi-threading
- Networking, security, upgradability
- Portability, performance
- Libraries, standard compliance, device management

engineering subcontractor
with research background



we design **electronics**

QUICKSAND
MICRO-ELECTRONICS

- * What can Rust bring us, given that we are using C right now for embedded device development
- * How applicable is it to bare-metal programming of devices
- * Which tools are available, how to integrate it in our existing toolflows



Michael Allwright



Freelancer specialising in Rust and WebAssembly
training • consulting • development

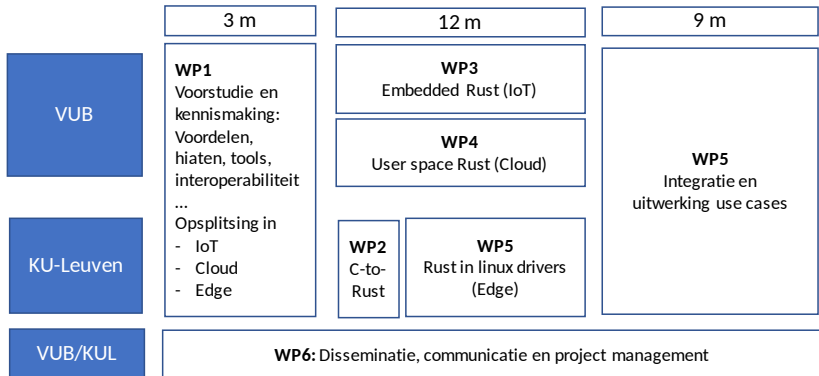


Interest in RustIEC

- Support companies in Flanders using Rust and WebAssembly both in the browser and on the backend
- Learn more about Rust in the IoT and embedded space
- Explore how Rust can make Flemish companies more competitive

Who are you?

PROJECT PLANNING



USE CASES AND DISSEMINATION



<https://rustiec.be>

- ▶ Two **case studies**:
 - ▶ IoT: Rust on low-power wireless sensor network
 - ▶ User-space driver and kernel-space driver

USE CASES AND DISSEMINATION



<https://rustiec.be>

- ▶ Two **case studies**:
 - ▶ IoT: Rust on low-power wireless sensor network
 - ▶ User-space driver and kernel-space driver
- ▶ Two hands-on **workshops**
 - ▶ Rust introduction
 - ▶ Advanced workshop