Open Framework for Embedded Robot Applications

http://ofera.eu

The OFERA project is funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No 780785

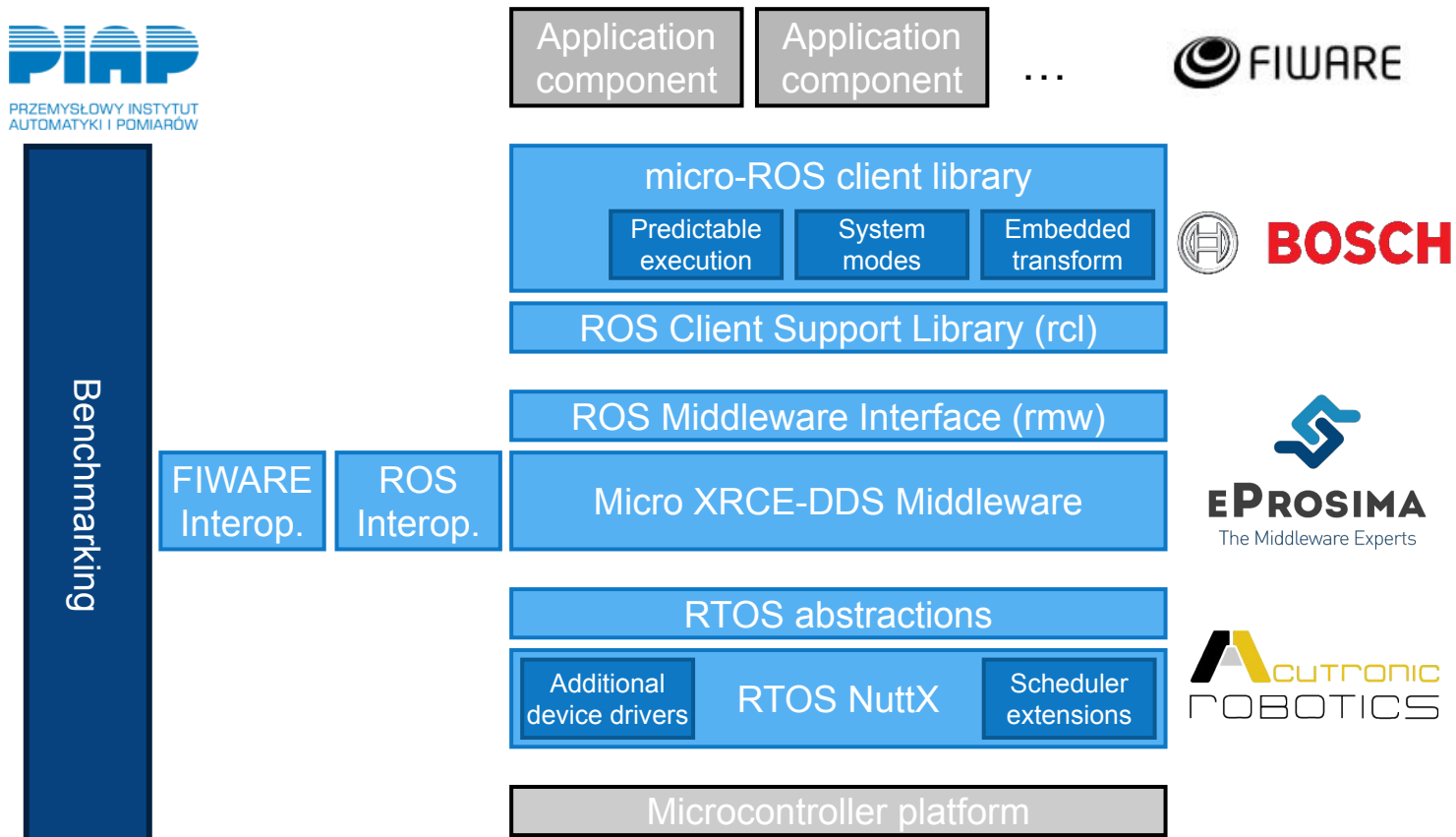
Open Framework for Embedded Robot Applications (OFERA)

Overview

OFERA puts ROS2 on microcontrollers:

μROS

https://microros.github.io/



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Challenges

- Linux+ROS: Powerful, well accepted, but…
  - Issues: power usage, safety, predictability, complexity, security, hardware integration
- MCU+RTOS: low power, safety-rated HW, predictable scheduling, easy sensor integration, affordable, but…
  - completely different ecosystem right now
  - very diverse HW and environments
  - limited resources
  - development requires actual HW, simulators not powerful enough
  - tool and language support problematic

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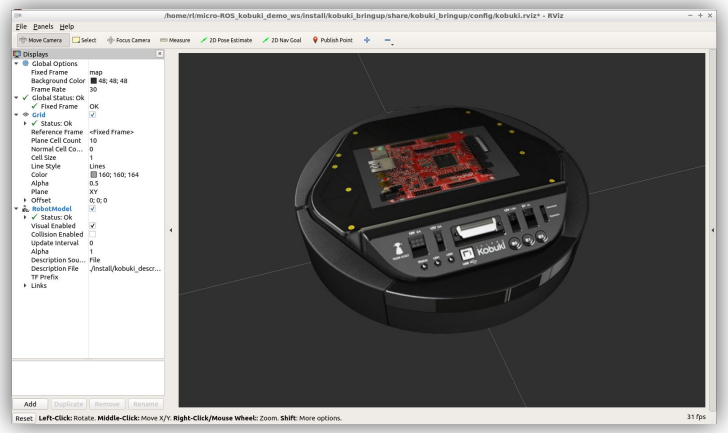
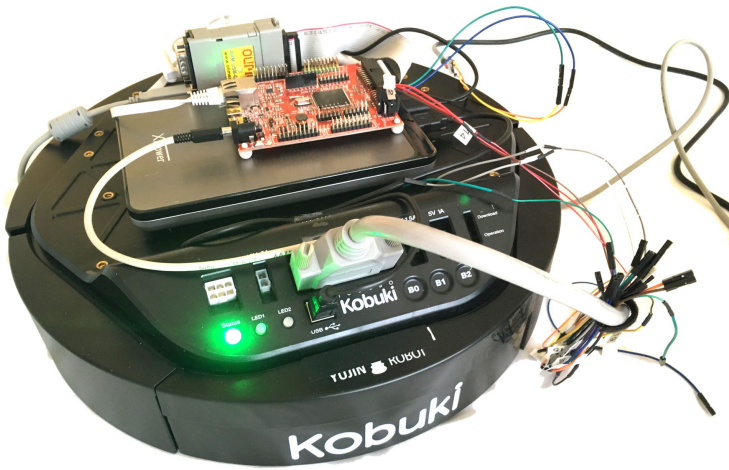
Community Use-Case: Kobuki with Olimex STM32 E407





ROS 2 (Crystal) running
- Visualization
- Keyboard control
- odometry to TF
- DDS <-> DDS-XRCE agent

DDS-XRCE over UDP

micro-ROS running
- thin_kobuki_driver
- DDS-XRCE client

at less than 100 KB RAM

Preliminary version at github.com/microROS/micro-ROS_kobuki_demo

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Dissemination and Collaboration

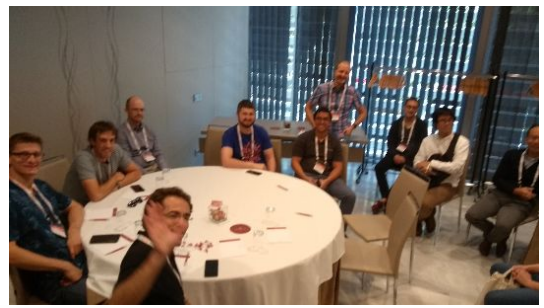
- OFERA team proposed and organized formation of

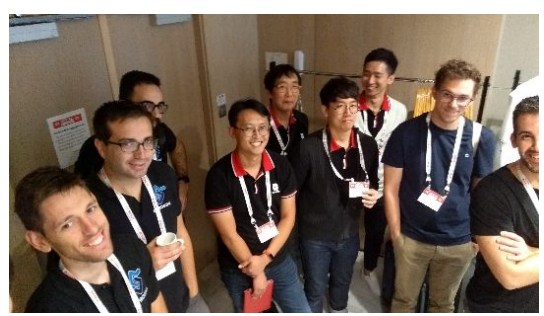
  ROS 2 Embedded SIG

  (Special Interest Group)

- Initial meeting with 20+ participants from Amazon, Bosch, eProsima, Acutronic Robotics, ESOL, OSRF, … at ROSCon 2018 in Madrid

- Join the discussion and meetings at **discourse.ros.org/c/embedded**





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