# 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

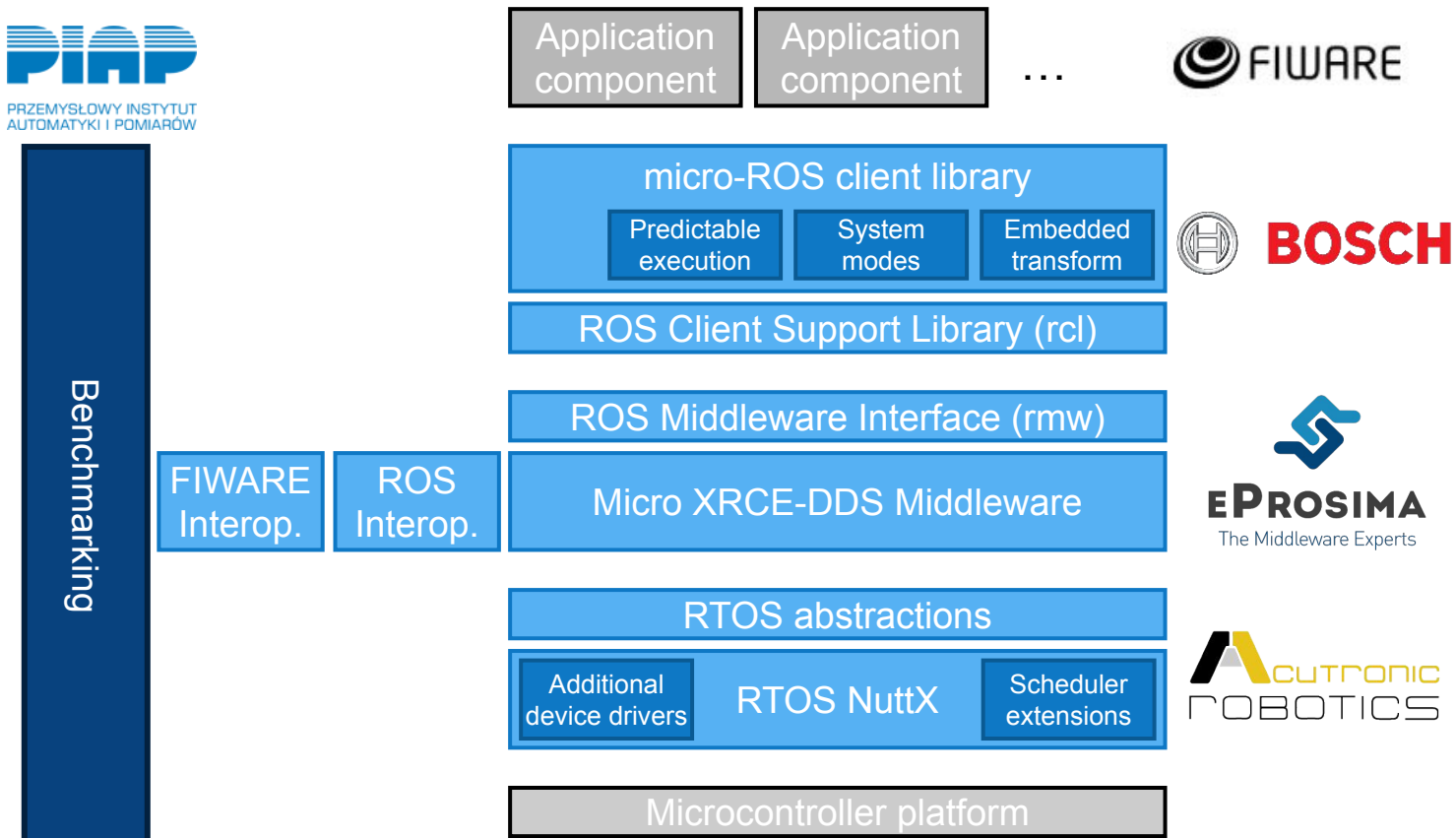
# Open Framework for Embedded Robot Applications (OFERA)

## Overview

**OFERA puts ROS2 on microcontrollers:**

μROS

https://micro-ros.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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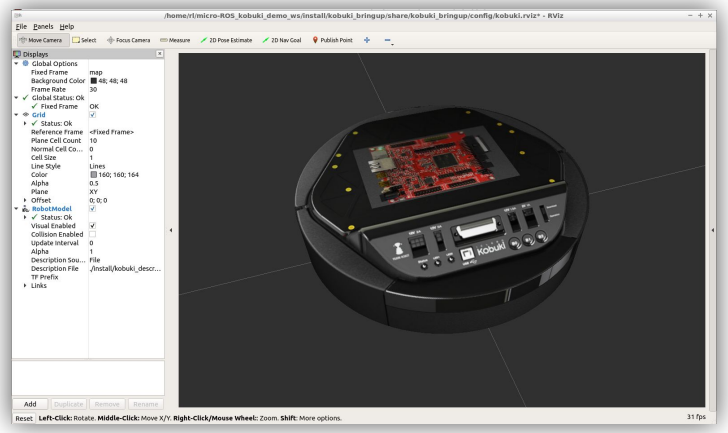
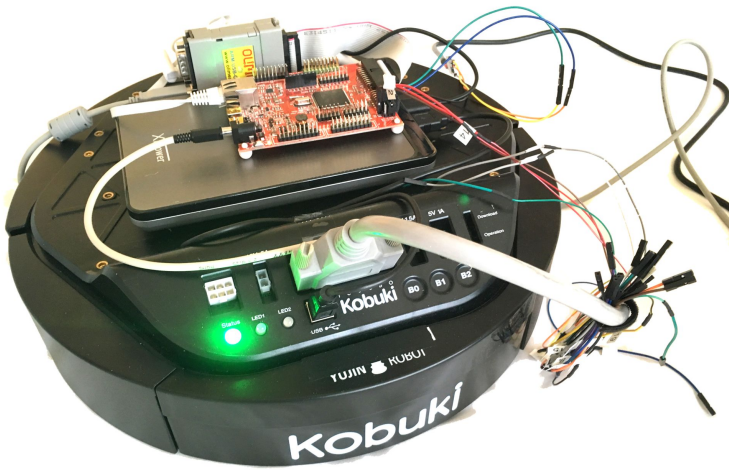
## Community Use-Case: Kobuki with Olimex STM32 E407






**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/micro-ROS/micro-ROS_kobuki_demo](github.com/micro-ROS/micro-ROS_kobuki_demo)**



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## Dissemination and Collaboration

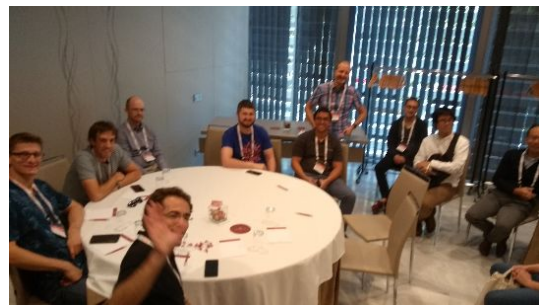
- OFERA team proposed and organized formation of

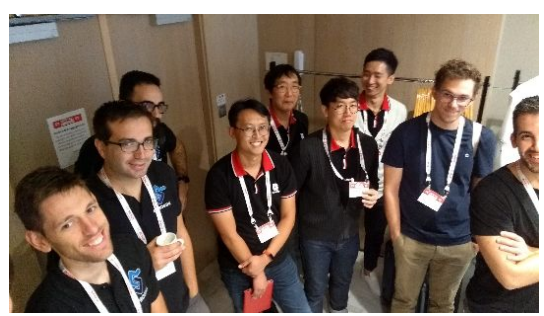
  **ROS 2 Embedded SIG**

  **(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](discourse.ros.org/c/embedded)







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