**ABSTRACT**

The LabBot Framework project is intended to implement control of experiment and data acquisition without writing special platform codes, while achieving industrial-grade results.

- Set of industry-tested languages and approaches
- Small and medium-scale experimental setups
- Laboratory equipment
- Open source, GPLv2 licensed

**BACKGROUND**

- Intended for small and medium-sized research groups
- Large-scale experiment control systems, like EPICS
- Industrial SCADA systems, much relying on rock-solid durability of PLCs
- Tools like LabView, highly regarded in test-and-measurement industry, good support with NI ecosystem

**IMPLEMENTATION**

- Each module is accessible via remote API
- Available in almost any platform or language
- Module communication via JSON RPC
- Remote API available automatically - same as local inter-module communication via JSON RPC
- Lua API for accessing database, device manager, etc.
- Lua scripts for logic
- Modules can be loaded and unloaded during runtime
- Homogeneous format for data storage and transmission
- Flexible yet unified request and response format

**OUTLOOK**

Further development of LabBot is aimed for adaptation to requirements of external users. In addition to the development of documentation and device modules, the development of the software package itself will be continued. The nearest challenges are: RAD tooling, adding support of new platforms, repository tools, etc.

We are eager to support other research groups willing to try using it in their activity

**ACKNOWLEDGEMENTS / REFERENCES**

This report supported in part (in part of implemented applications) by Rosatom (contract - № H.4a.241.19.19.1009) and by Iofe Institute (Russian Federation state funding assignments 0034-2019-0001 and 0040-2019-0023) was prepared as an account of work for the ITER Organization. The views and opinions expressed herein do not necessarily reflect those of the ITER Organization.