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| Project Work 1 - Outline | | |
| **Study Cohort** | | AD22 |
| **Title** | | Process Modeling and Implementation with Blockly, Python, and Node-RED |
| **Confidential** | | No |
| **Specialisation** | | Robotics, IoT |
| **Names** | Students | Kai Aebli  David Senn |
|  | Supervisor | Marco Brunschwiler |
| **Assignment**   * **Initial status** * **Objectives** * **Additional Assignment Modalities** | | Robot arms and other actuators play an important role in the automation of processes in laboratories and production plants. Examples of such devices are available in the department in the form of Dobot Magicians. The Dobot Magician is a 4-axis robot arm that is suitable for various tasks in the laboratory context. Such robot arms and other actuators often work together in strictly defined processes, whereby the process flow considers certain external signals or conditions depending on the context. The semi-formal modeling of such processes plays an important role in the digitization and automation of laboratories and production plants. The robot arms can be programmed using the so-called "no-code" environments Node-Red and Blockly. In a "no-code" environment, functional blocks are arranged in a graphical interface.  Research questions:   * Is Blockly or Python better for the implementation of a process? * How well can a process defined in Blockly be translated to Python? * Are Raspberry Pi effectively usable as edge cluster in the industry?   Preliminary table of content  Zusammenfassung  Abstract  Table of content  Glossary  1 Introduction  2 Theoretical background  3 Methods  4 Results  5 Discussion  6 Conclusion  7 Bibliography |
| **Formal Requirements** | | * All relevant [Guidelines](https://www.zhaw.ch/de/lsfm/studium/studiweb/bachelor/pruefungen-und-studentische-arbeiten/) for student papers * Citation management software: Zotero * Citation style: APA 7 |
| **Timeline** | | *See last page* |
| **Submission Deadline** (12:00 PM) | | *23.05.2024 12:00* |
| **Remarks** | | Submission requirements:  Project report: Uploaded digitally via Complesis (as PDF and original file format)  Code: tracked and documented on a Github repository |
| **Workplace** | | ZHAW Wädenswil |

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