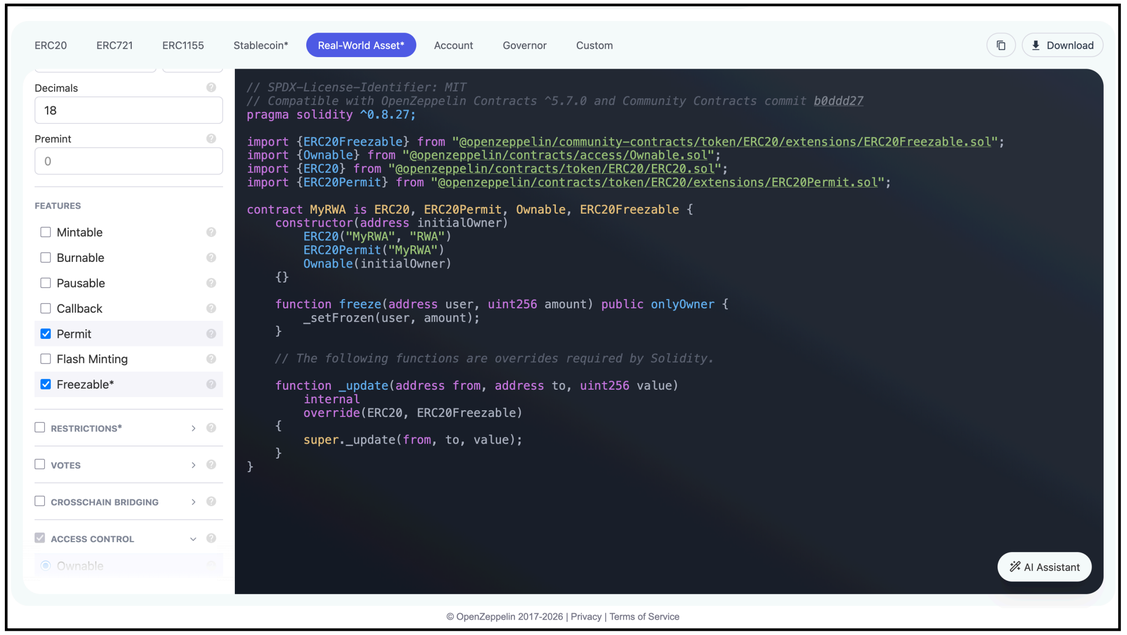
Chair of IT Service Management, Development and Operations
TUM School of Computation, Information and Technology
Technical University of Munich

Graphical User-Interface for Model-Driven Engineering of Blockchain Applications

Bachelor Thesis

- Developing blockchain applications is challenging due to its complexity and security relevance.
- Model-driven engineering (MDE) paradigm can address these challenges, by translating graphical models or forms into well-tested code patterns [1]. The paradigm is adopted by more and more vendors; an example is Open Zeppelin's Contract Wizzard [2]. However, it lacks workflow or state machine support.
- Chorpiler is a tool than can translate BPMN Choreographies into smart contracts [3]. In this thesis, we want to extend the tool with a graphical user interface, and show case its use.



Open Zeppelin's Contract Wizzard

[1]: Di Ciccio, C., Cecconi, A., Dumas, M., Garcıa-Banuelos, L., Lopez-Pintado, O., Lu, Q., Mendling, J., Ponomarev, A., Binh Tran, A., Weber, I.: Blockchain Support for Collaborative Business Processes. Informatik Spektrum 42(3) (2019) 182–190
[2]: https://wizard.openzeppelin.com, accessed 2026-09-25.
[3]: https://github.com/fstiehle/chorpiler, accessed 2026-09-25.

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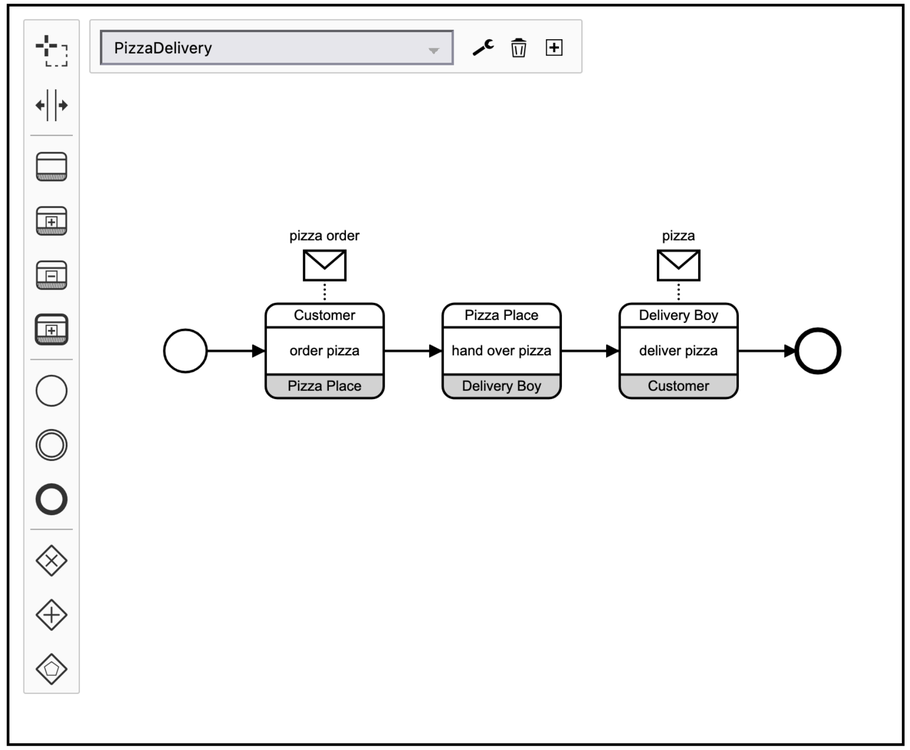
Tasks

1. Familiarise yourself with the Chorpiler [3] framework and the Chor.js [4] graphical library.

2. Implement an application that integrates the graphical capabilities of Chor.js and the generator Chorpiler to deliver a development experience like Open Zeppelin's Contract Wizzard [2].

The application shall introduce advanced useability features, such as:

- Allowing the user to jump to the relevant code part by clicking on the corresponding graphical model element.
- Introducing protected regions, so newly introduced code is not overwritten by changes in the graphical model.



Chor.js

[2]: https://wizard.openzeppelin.com, accessed 2026-09-25.
[3]: https://github.com/fstiehle/chorpiler, accessed 2026-09-25.
[4]: https://github.com/bptlab/chor-js, accessed 2026-09-25.

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Contact

Every theses starts with an exposé, where you shape the topic towards your interest (in consultation with us). If you're interested, please contact us as outlined at https://www.cs.cit.tum.de/en/isdo/teaching/theses/.

Recommended Prerequisites

Familiarity with blockchain technology; Strong programming skills, especially in JavaScript, Typescript, and Frontend frameworks.

Important Reading / References

[1]: Di Ciccio, C., Cecconi, A., Dumas, M., Garcıa-Banuelos, L., Lopez-Pintado, O., Lu, Q., Mendling, J., Ponomarev, A., Binh Tran, A., Weber, I.: Blockchain Support for Collaborative Business Processes. Informatik Spektrum 42(3) (2019) 182–190
[2]: https://wizard.openzeppelin.com, accessed 2026-09-25.
[3]: https://github.com/fstiehle/chorpiler, accessed 2026-09-25.
[4]: https://github.com/bptlab/chor-js, accessed 2026-09-25.