PROF. DR.-ING. MARK SCHUTERA

FULL STACK HANDWERK

UNFINISHED LECTURE NOTES

PUBLISHED BY UNFINISHED LECTURE NOTES

These notes are, by their very nature, unfinished, and they improve with every reader. If you spot an error, disagree with a framing, or want to add a source, a question, or a position, open a pull request at https://github.com/Quillstacks/LectureMaterial/tree/main/lecturenotes/notes_missingsemester. Every contribution is welcome.

2026-06-12 · regal dragonfruit Mufflon

Ship on something that runs

2026-06-09 · lively cherimoya Mufflon

High Five.

The Why

The Projektbericht lets you extend a block of this course on your own snapshot. HighFive offers the other path: A real full stack application, running live at highfive.schutera.com, with its source on my GitHub and an open invitation to ship into it. Where the report proves you can build in isolation, a contribution proves you can build inside a system that other people already depend on.

HighFive is an open monitoring pipeline for wild bee nesting activity, built as a citizen science kit. Camera modules running on solar power photograph bee hotels, an analysis pipeline turns those images into counts and trends, and an interactive dashboard with a map puts the results in front of anyone who cares about pollinators.

It is the full stack you just learned, end to end. The frontend is React with Vite and TypeScript. The backend is Node.js with Express alongside Python services on Flask. Data lives in DuckDB. Firmware for the ESP32-CAM camera modules is written in C++. Every layer from this course, from the Linux box up to the served frontend, has a home somewhere in this repository.

Pick something and make it better. Sharpen the image pipeline, harden a backend service, tidy the dashboard, document a rough edge, or write the test that was missing. Open an issue describing what you want to do, agree the scope with me, then send a pull request. By prior agreement a merged contribution can form the basis of your Projektbericht: Same evaluation, real impact, and your name in the history of a project that outlives the semester. And yes, other students did ship into this repo in previous semesters, so you will be in good company.

Find HighFive here. The deployment runs at highfive.schutera.com, and the source lives at github.com/schutera/highfive.

Read the arc42 architecture document in the repository before you touch code; it explains how the pieces fit together.

Before you open a pull request. HighFive is source available rather than open source: Free for any noncommercial use under the PolyForm Noncommercial License 1.0.0, with commercial use under a separate license. Contributions require you to accept the Contributor License Agreement in the repository. For commercial questions, write to schutera@dhbw-ravensburg.de.