

Toivo Kallio

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PROFILE

I'm a high schooler at Otaniemi upper secondary school who has been programming since elementary school. Most of what I know is self-taught: I started by writing automation scripts for games and never really stopped building.

Today I build across the stack. I co-founded OtaMaps, an indoor navigation system 900+ students at my school have registered for, and Solmuton, an IT-as-a-service platform for managed service providers. I'm on STUHI's core team, where I handle the finances and whatever else needs doing, from the website to representing us at events.

What I want to do long term is aerospace. I'm building a VTOL RC F-35B from scratch, flew a CanSat in the Finnish competition, and I'm a founding member of my school's FPV drone club. Most of what I ship today is software, because that's what a 17-year-old can build alone in his room. The plan is to change that.

EDUCATION

Otaniemen lukio (Otaniemi upper secondary school)

2024 — 2027 (expected May 2027)

Natural sciences and mathematics line

EXPERIENCE

Co-Founder, Solmuton

2026 — Present

Co-founded a multi-tenant SaaS platform for managed service providers.

Core Team, STUHI

2026 — Present

Head of Finance on the core team since August 2026, and a generalist beyond that: I build the STUHI website and the Temple platform, represent STUHI at events, and talk ideas through with the rest of the team. The hardware lab is next. Before that I organized events, including Startup Carnival, a 410-person evening with founder panels, startup booths, and networking for Helsinki high schoolers.

Co-Founder & Board Member, OtaMaps

2025 — Present

Co-founded the company and built the firmware powering our ESP32 beacons. Incorporated as a nonprofit (OtaMaps ry), and now designing custom BLE beacons to widen coverage at our own school beyond the original plans.

Co-Founder, Hack Club, Otaniemen lukio

Jul 2025 — Jul 2026

Co-founded Finland's first Hack Club chapter at my school with Rene Saarikko and Farrukhbek Yusupov. We ran a handful of workshops; the chapter has been quiet since.

Founding Member, Otaniemen lukio FPV Drone Club

2026 — Present

A teacher started it and secured the school's funding. I picked and ordered the whole kit (7-inch FPV quads, ELRS radios, analog goggles, a thermal camera) and have been there since the first session, mostly fixing what we crash. Now starting the club's sponsorship and site-visit outreach to Finnish drone and aerospace companies.

PROJECTS

Solmuton (Co-founder)

2026 — Present

Solmuton bundles device/MDM management, user lifecycle, IT support ticketing, billing, and automated provisioning of a company's digital presence for managed service providers and the small businesses they serve.

Stack: Node.js, Fastify, TypeScript, Next.js, Supabase, Redis, BullMQ, Coolify · solmuton.fi

F-35B VTOL RC Jet (Solo build)	2026 — Present
Quadplane-style VTOL under ArduPilot: a front lift fan, a rear 70mm EDF on a three-bearing swivel nozzle for thrust vectoring, and two small roll posts out on the wings. LW-PLA print over carbon spars, with two RP2040s running lights, temperatures, and a cockpit display over MAVLink. The system design is locked and the parts have arrived, sponsored in part by STUHI. The CAD and the hover rig are what's left, and they're the hard part. A foamboard trainer flew first, and crashed twice, to prove the electronics before the real airframe.	
Stack: ArduPilot, RP2040, MAVLink, LW-PLA, Carbon fiber, 70mm EDF · github.com/Zawaer/F35	
OtaMaps (Co-founder · firmware & beacon system)	2025 — Present
ESP32-based Bluetooth beacons and a mobile app for indoor navigation, now used by 900+ registered students at my school.	
Stack: ESP32, Embedded C, React Native, Firmware, BLE · otamaps.fi	
CanSat 2026 (Otis-1)	2026
Built with a six-person team for the Finnish CanSat competition — the satellite descended by parachute to roughly 1km altitude, streamed live GPS and sensor telemetry over LoRa, and was tracked and recovered within about 30 minutes.	
Stack: MicroPython, RP2040, LoRa, C++, Arduino, GPS	
Oikotie (Solo)	2026
A Chrome and Firefox extension that automates the MPASSid sign-in flow for Kampus, Nova, and Studeo, the learning platforms Finnish schools use. 30+ active users at my school.	
Stack: JavaScript, TypeScript, WebExtensions, MV3 · github.com/Zawaer/oikotie	
VEX V5 Competition Robot (Driver, coder & builder)	2026
Wrote the robot's control software, worked on the build and testing with my team, and was the driver in the actual competition matches — 1st place and the Excellence Award at regionals, then 2nd in Alliance Champions and the Think Award at the Finnish national final.	
Stack: VEXcode V5 Python, MicroPython	
Bananagrams Assistant (Solo)	2025
A YOLO11 model detects Bananagrams tiles from a photo with 96% average confidence, and a custom C++ solver finds optimal word placements via backtracking.	
Stack: YOLO11, C++, Python, Flask, Next.js · github.com/Zawaer/bananagrams-assistant	
Quantum Bancassurance Optimizer (Team QuantumCollided)	2026
Built at a 211-participant hackathon for OP Financial Group — a quantum-classical optimizer, tested on real IBM quantum hardware, that cut simulated insurance-claims triage costs by 3.84% versus a classical baseline.	
Stack: Qiskit, QAOA, Python, NumPy, IBM Quantum · github.com/Zawaer/op-quantum-bancassurance	

HONORS

16th nationally — Datatähti 2026	Jan 2026
Finnish Olympiad in Informatics	
Finalist — Finnish VEX V5 Robotics Championship	Feb 2026
REC Foundation · Think Award	
Flew and recovered a satellite — CanSat 2026 (Otis-1)	Mar 2026
Finnish CanSat Competition	
1st place — condense.chat challenge, {Tech: Europe} Agentic AI Hack	Oct 2026
haggle, an agentic second-hand buying assistant	
12th nationally — Neljän tieteen kisat	Oct 2024
National Mathematics Competition (MAOL ry)	