

# Sametcan Venedik

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Mechatronics Engineer  
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**B.Sc.**  
2019–2024

**Afyon Kocatepe University**, Turkey  
Mechatronics Engineering

- CGPA: 2.88/4.00
- Academic focus: Control systems fundamentals, embedded systems basics, and introductory mechatronic system design
- Graduation Project: Basic RFID-based personnel access control system.

**A.Sc.**  
2017–2019

**Akdeniz University**, Turkey  
Mechatronics

- CGPA: 3.86/4.00
- Practice-oriented curriculum including PLC-based control exercises, actuator selection fundamentals, CNC machining basics, technical drawing, and introductory C programming

## RESEARCH EXPERIENCE

2024–2025

### Cherenkov Radiation–Based Imaging for Device Accuracy Verification

- Conducted applied R&D on Cherenkov radiation–based optical imaging as an alternative method for device accuracy verification
- Performed experimental measurements and evaluated the correlation between acquired radiation images and reference planning data
- Designed experimental setups and test procedures to assess system accuracy and repeatability
- Analyzed system performance by comparing measurement results with established calibration and verification methods

## PROJECTS

2024–2025

### Industrial Automation and Measurement System(Confidential)

In-house R&D Project, Physmart Solutions

- Designed and developed a fully automated measurement and data processing system to reduce manual labor in internal operations
- Led end-to-end system development, covering mechanical design, hardware selection, software architecture, and system integration
- Designed the mechanical structure and Cartesian motion system using SolidWorks, including integration of linear mechanisms, switches, and peripheral devices
- Developed a Python- and Qt-based central control software enabling real-time device control, data acquisition, processing, visualization, and automated decision-making
- Implemented multi-process architecture with USB-based communication to STM32-controlled sub-systems, real-time system monitoring, fault detection, and diagnostic logging, validated through continuous operational use

2024–2025

### Cherenkov Radiation–Based Imaging System for Accuracy Verification

TÜBİTAK 1507 R&D Project, Physmart Solutions

- Designed and developed a test and measurement system to verify radiotherapy device accuracy by comparing Cherenkov radiation images with treatment planning data
- Led end-to-end system development, including mechanical design, prototyping, software development, and experimental validation
- Designed a precision mechanical structure (0.1 mm rotational, 1 mm axial accuracy) using SolidWorks and supported design decisions through basic deflection analysis
- Developed a Python- and Qt-based PC application for real-time image acquisition, processing, visualization, and data logging using OpenCV and third-party camera libraries
- Validated system accuracy through experimental radiation measurements and comparison with established calibration methods

PROFESSIONAL & ACADEMIC EXPERIENCE

2024 – Present	<div><div>Physmart Solutions, Turkey</div><div>Mechatronics Engineer</div><div><ul style="list-style-type: none"><li>Designed electromechanical devices from concept to serial production using SolidWorks</li><li>Supported R&amp;D-focused product development through prototyping and structural optimization</li><li>Executed mechanical redesign of an existing device, including enclosure re-modeling and external manufacturing coordination</li><li>Performed basic structural simulations to evaluate load-induced deflection</li><li>Conducted device-level debugging across mechanical assemblies, PCB designs (Altium), and STM32-based embedded software</li><li>Re-developed PC-based control software using Python and Qt, integrating hybrid local/remote data handling</li></ul></div></div>
2022 – 2023	<div><div>BTECH Innovation, Turkey</div><div>Intern</div><div><ul style="list-style-type: none"><li>Independently learned and applied nTopology for lattice and HEX structure design on training and evaluation parts</li><li>Designed HEX-based lightweight geometries using stress-informed design concepts for additive manufacturing studies</li><li>Gained hands-on experience in SLA, FDM, and SLS additive manufacturing processes, with active involvement in production workflows</li><li>Operated additive manufacturing systems and developed practical understanding of support strategies, build constraints, and material behavior</li><li>Conducted design-for-additive-manufacturing (DfAM) studies on non-production components to evaluate manufacturability and structural efficiency</li></ul></div></div>

REFERENCES

References available upon request

SKILLS & ABILITIES

Programming	Python, C, MATLAB
Embedded	STM32, digital / analog I/O, PID control
Mechanical Design	SolidWorks, nTopology
Electronics Tools	Proteus, Altium Designer (debug level), Git
Manufacturing	Additive manufacturing (FDM, SLA, SLS)
Languages	Turkish (Native), English (Technical reading)