YAKUP TOPALOGLU

Mechatronics Engineer

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Experience

Gorsentam Agricultural Technologies Inc.
Embedded Systems Specialist Intern   **September 2024-May 2025**

- Designed the schematic circuit and PCB layout of the leaf wetness sensor.
- Developed the embedded software for the leaf wetness sensor.
- Improved the soil temperature and humidity sensor and prepared its PCB design.
- Designed the schematic and PCB layout of the solar radiation sensor and developed its embedded software.
- Worked with Modbus, UART, I2C, and RS485 communication protocols.
- Created detailed documentation for the projects.
- Simulated and tested measurement methods using LTspice.
- Developed mathematical models for the data read from sensors.

Bren Advanced Technology Energy Inc.
Hardware Design Engineering Intern   **July 2024-August 2024**

- Designed a new schematic and PCB layout for the weather station device and tested its embedded software.
- Completed riveting and soldering assembly of the final products intended for end users.
- Conducted studies on I2C and UART communication protocols.
- Carried out field research on different types of steam traps (condensate traps).
- Performed repairs on products collected from the field.
- Created 3D CAD models of electronic components.

Education

Bursa Technical University, Turkey (2020-2025)

- Bachelor's Degree, Mechatronics Engineering **(GPA: 3.00)**

Additional Information

BTU-Fırat Uav Team   **September 2023-September 2024**

Team Captain and Software Team Leader

- Provided leadership in the design and development of mission software algorithms.

- ➢ Developed algorithm software for an indigenously designed remote controller and gimbal system.
- ➢ Took responsibility in team management and procurement processes.

BTU–Lagari UAV Team   **October 2022-September 2023**

Software Team Member

- ➢ Took responsibility in the backend and frontend development processes of the ground station software.
- ➢ Developed mission software algorithms.
- ➢ Actively contributed to team collaboration and coordination.
- ➢ Designed the project and prepared its technical documentation.

Honors and Awards

- ➢ Performance Award – Teknofest 2023 UAV Competition.

- ➢ Sevdi, O. E., Topaloglu, Y., Yılmazyıldız Kayaarma, S., (2025). A Near-Real Time Automatic Audio Classification and Keyword Spotting: Special Case for Karagoz and Hacivat Shadow Play (Paper Submitted)

Projects

- ➢ Performed emotion classification of human faces using ANN, CNN, and RNN neural network models.
- ➢ Conducted fruit classification using the YOLOv5 model.
- ➢ Developed servo motor tracking movements using Arduino and the OpenCV library.
- ➢ Designed and developed a palm detection and recording algorithm using MediaPipe library on Raspberry Pi 4.
- ➢ Real-time audio classification and keyword spotting for Karagöz and Hacivat shadow play. using Bi-LSTM, CNN, and CRNN.

Skills

- ➢ Python
- ➢ C/C++
- ➢ Altium
- ➢ Kicad
- ➢ Saturn PCB Toolkit
- ➢ Matlab / Simulink
- ➢ Solidworks
- ➢ RT Toolbox
- ➢ PLC
- ➢ LtSpice
- ➢ Tensorflow
- ➢ PyTorch

Languages

- ➢ Turkish (Native)
- ➢ English (Advanced)