

Can Kınık

Electrical and Electronics Engineering Undergraduate

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EDUCATION

İhsan Doğramacı Bilkent University 2017-2021

- Fourth Year Second Semester EEE Undergraduate
- Merit scholarships of 100%, 40% and 60% for academic success
- CGPA & AGPA: 3.78/4.00 | Standing: High Honor | Ranking: 18/234
- Expected to graduate in June 2021

TED Ankara College Private Highschool

- Graduated with certificates from two programs in 2017.
- National Degree: 94.07/100 | International Baccalaureate Degree: 38/45

WORK EXPERIENCE

Ecin Robotics R&D Summer Internship

I have worked with Ecin Robotics, a sub-brand of Göker Hydraulics, that develops R&D solutions for industrial and electronic requirements. My one month long online internship focused on developing an embedded control system for controlling DC motors to act like servo/stepper motors. Throughout the course of the project, I had the chance to improve myself in the areas of working with microcontrollers on the Mbed platform, nonlinear systems and feedback theory, system transfer function analysis through testing, and PID tuning methods.

TAI UAV Integration and Testing Department Summer Internship

I have worked within Turkish Aerospace Industries under the Unmanned Aerial Vehicle Department's integration and testing branch. I have gone through theoretical training on avionics regarding subjects such as navigation, communications, and positioning, conducted hardware tests through pre-generated sensor monitoring comparators, and lastly wrote my own software in C# to generate automated tests to identify any misfits between the requirements and the product.

ONLINE EDUCATION (MOOC)

- Introduction to System on Chip Design.....ARM Online Courses, ARM
- Embedded Systems Essentials with ARM..... ARM Online Courses, edX
- Real-Time Bluetooth NetworksUniversity of Texas at Austin, edX
- Introduction to LinuxLinux Foundation, edX
- Version Control with Git Atlassian, Coursera
- Introduction to Operating Systems Georgia Tech, Udacity
- Algorithms Specialization by Stanford..... Stanford, Coursera
- C Programming Step by StepUdemy
- C++: From Beginner to ExpertUdemy
- Advanced C++ Programming Training CourseUdemy
- QT C++ GUI Tutorial for BeginnersUdemy
- Starting with Altium Designer.....Udemy

SKILLS

- C & C++
- 8051 & ARMv6-M Assembly Instructions
- VHDL
- MATLAB
- Java & C#
- Embedded Systems
- Operating Systems
- Real-Time OS
- Algorithm Design
- SoC Design
- OpenCV
- Linux Shell Scripting
- PCB Design with CAD
- Git
- English (IELTS: 7.625)
- Turkish (Native)
- German (Intermediate)

PLATFORMS

- Mbed & Keil µVision
- Mathworks & Simulink
- Vivado
- Android Studio & QT
- Linux
- Altium Designer
- LTSpice
- ARM Cortex-M0&M4
- STM 32
- Arduino UNO & IDE
- Raspberry-Pi
- BASYS-3

RELEVANT COURSES

- Microprocessors
- Digital Design
- Feedback Control Systems
- Nonlinear Systems
- Robust Feedback Theory
- Introduction to Robotics
- Computer Networks
- Telecommunications
- Algorithms and Programming 1 & 2
- Signals and Systems
- Electronic Circuit Design
- CMOS and VLSI Design

PROJECTS

Term Project for Undergraduate Studies: Providing IoT Services for Smart Manufacturing

A project that offers numerous services, with the most notable one being indoor position tracking and reporting for people and objects using a stereo camera setup. The cameras are calibrated via checkerboard pictures. The regions of interest from both feeds are identified using a neural network, which passes the masked images to a matcher algorithm to identify coinciding points inside these regions. The relative position of these points is then used alongside the found camera properties to calculate the 3D position of points inside the region, which are combined to identify the location of people or objects in an indoor setting. This position is then portrayed on top of the building's layout, so that workers can easily search and find objects they are looking for, routes of machines can be verified, and the movement of employees can be traced. Other features include predictive and preventive maintenance through the spectral analysis of machine audio, using face recognition to grant access through gates depending on the identity of the worker and whether they are wearing the necessary protective equipment or not, and worker safety monitoring through detecting falls and dangerous noise levels. The system utilizes an Android application, and a LoopBack-based Linux server.

Microcontroller for Converting DC to Servo/Stepper Motor

An embedded project on STM32F469 using PID feedback control, with encoder input and PWM output, to manage DC motors with an interface like Servo or Stepper motors, i.e., controlling revolution through serially transmitted input degree or interrupt driven controlling pulses. The transfer function of the motor has been analyzed to find the optimal operating conditions, and the initial estimates of the PID parameters are obtained through Ziegler-Nichols' 2nd Method, which are further fine-tuned through iterative adjustments. The system is able to conduct automatic tests and adapt, eliminating any manual intervention for different motors or loads, making the project highly modular.

Two-Dimensional Radar Mapping with FRDM Microcontroller & Arduino

A device composed of FRDM microcontroller, Arduino Uno, proximity sensor, high resolution LCD, and servo motor that is capable of periodically mapping its surroundings in a bird-view radar fashion. The servo and proximity sensor are controlled by the Arduino, and the samples are sent through a serial link to the microcontroller, which processes the data to generate an image on the LCD screen. C/C++, Mbed, interrupts, and UART serial protocols were covered.

Contactless AC/DC Clamp Ammeter

A device composed of a hall effect sensor embedded in a toroidal metal core, Arduino Uno, LCD, and OPAMP-based filters. The system is a clamp that is placed around a wire, which can detect AC and DC currents of up to 1A and 150Hz at a precision of around 2.2%. The sensor data is then processed by the Arduino to report signal characteristics.

Fitness Tracker BSP and RTOS

Within the scope of an online course, I have used an ARM Cortex-M4: MSP-432 and worked on a given BSP to implement RTOS functionality on a fitness tracker. C and ARM thumb instruction set were used within the process, and concepts such as interrupt handling, multi-threaded operations, and semaphores were covered.

Android Application for In-Campus Navigation

A mobile in-campus navigation application that tracks movement through GPS, provides additional information about the establishments in the campus in real time, and allows for dataflow through Firebase and Dagger databases.

FPGA Guitar Hero Game

Implementation of the "Guitar Hero" game on an FPGA board (BASYS-3) using VHDL on the Vivado platform. Random number generation, GUI, real-time signal response and sound synthesizing concepts were utilized.

Small Distance Radio Transceiver

A system which has been built from scratch within the scope of Analog Electronics course that uses antennas, microphones, frequency channels and signal generation for receiving and transmitting sound within 10 meters.

Simple Microcontroller-Based Oscilloscope for Testing

An application using the STM32F469 microcontroller which displays the input analog voltage in real-time on an LCD screen. The frequency of operation can be adjusted using a potentiometer, and the time dividends at the bottom of the screen can be used to identify intervals from 10s to 100 μ s. The system is also able to freeze and capture a frame.

Pi-Hole Ad Blocking Network Setup

Setting up a pi-hole program on Raspberry-Pi 1b+ to block blacklisted sites from forwarding their DNS address to appropriately configured local devices. A simple recreation to gain insight into SSH control over Raspberry-Pi.