

# Hasan Mutlu

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### **EDUCATION**



• Gebze Technical University

Computer Engineering (English)

2019 – 2024 GPA: 3.08

### **EXPERIENCE**



- TEI Tusaş Engine Industries
- ➤ Assistant Embedded Software Engineer
- ➤ Part-Time Embedded Software Engineer
- > Candidate Embedded Software Engineer

Eskişehir, Türkiye October 2024 - Today June 2024 - September 2024 January 2024 - May 2024

dinamoerp | birlesik yazılım

- Birleşik Yazılım
- > Software Development Intern

Kocaeli, Türkiye July 2022 – August 2022

### **PUBLICATIONS**

• Fatma Nur Esirci, Hasan Mutlu, Alp Arslan Bayrakci, "FPGA Based Verification for the Difficulty of Delay Based Hardware Trojan Detection" 14th International Conference on Electrical and Electronics Engineering (ELECO), 2023.

### **SKILLS**

#### Tools and Technologies Languages C Git C++Linux Microcontrollers Java ✓ STM32, MSP430, Arduino Python Real Time Operating Systems Verilog HDL Micrium uC/OS-III, FreeRTOS Assembly Javascript Flutter / Dart SQL

## LANGUAGES

Turkish: NativeEnglish: Proficient

## **PROJECTS**

• Hardware Trojan Detection Using Delay Based Method on FPGA - 🖸

Graduation Project

Tools: Verilog HDL, FPGA, Python

This project aims to detect hardware trojans on the FPGA by measuring the delay values of a single sample logical circuit path and its infected versions. The effect of inter-chip and intra-chip variations are also

investigated and it is observed that the trojan can hide in certain situations. It aims to reveal these hidden trojans by using a "Delay Ratio" method.

This project paved the way for the publication of "FPGA Based Verification for the Difficulty of Delay Based Hardware Trojan Detection" conference paper.

## • File Synchronization Server in C - 🖸

School Project

Tools: C

A POSIX-compliant simplified version of Dropbox is implemented in C language as final project for System Programming course. The server side is capable of handling multiple clients using a pool of threads. The directories on both sides are synchronized upon any changes. The communication is established via sockets. Interprocess communication, thread synchronization and signal handling are well implemented.

## • STM32: uCOS-III Micrium RTOS and SystemView Integration - 🖸

Personal Project

Tools: C, STM32, RTOS

This project is the integration of Micrium's uC-OS-III Real-Time Operating System and SEGGER SystemView analyzer tool into STM32 microcontroller. The integration is tested and verified with a small multi-task LED blink application. The integration steps are explained and documented in the project's Readme on GitHub.

## • Mini MIPS Processor in Verilog - 🖸

School Project

Tools: Verilog HDL

A single cycle processor was designed, based on MIPS processor architecture, as final project for Computer Organization course. It can run some basic 16bit instructions and small programs. The processor is implemented using structural Verilog, using logic gates only.

# • Semi-Autonomous Robot Dog Project - 🗘 - 🕒 - 🌐

School Project

Tools: Python

A 4-legged semi-autonomous robot dog is developed as a group project for Computer Engineering Project course, throughout a semester. It is capable of mapping its environment, receiving commands to move to specific locations, and recognizing objects.

I have taken part mostly in mapping module of the robot, working on 2D map construction, camera calibration and path planning.

## 

School Project

Tools: Flutter, Dart, Firebase, Agile

An Android application was developed as a group project for Software Engineering course, throughout a semester. The application allows customers to make appointments with people and companies providing services in wide variety of different fields such as dentists, music instructors or carrying agents. I have taken part in both front-end and back-end development.