Osman Karaketir

Embedded Software Engineer

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PROFILE

I have worked mostly on Embedded systems(Linux, RTOS) with C/C++. I like reading Assembly, I think it's something like puzzle solving.

I like competitive programming. I participated in several contests before I graduated.

I am trying to learn Go (not the game) nowadays. If you want to learn about my progress, I have created a GitHub organization for my Go projects. GOKaraketir

PROFESSIONAL EXPERIENCE

Embedded Software Engineer, *Lemona Bilim ve Fen A.Ş.*
Aug 2022 – present | Ankara, Turkey
C++ development on Zynq-7000 platform using Vitis. Development with PetaLinux and OpenWRT.

Software Engineer, *HAVELSAN*
Sep 2021 – Jul 2022 | Ankara, Turkey
Developing safety-critical embedded software with C/C++ and Ansys SCADE runs on VxWorks653 (RTOS).

Parttime Embedded Sofware Developer,
Antsis Elektronik
Jul 2019 – Sep 2020
I have worked on Embedded Systems. I have gained experience in C language, Embedded Linux (Yocto, Petalinux), Device Tree, Cross-Compilation, Qt Framework, and communication protocols(SPI - I2C).

COURSES

Algorithmic Competition Camps, *inzva*
2018 – 2019 | Istanbul, Turkey

I have participated Summer Camp 2018 in Foundation group, Winter Camp 2019 in Advanced group and Summer Camp 2019 in Expert group. They are one week camps for learning and practicing algorithms.

Algorithm Competititon Programme,
2018 - 2019 inzva
Istanbul, Turkey

The 30-week divided into Fall and Spring semesters, will include lectures, contests, problem-solvings and a variety of practices every Saturday

EDUCATION

Bachelor of Science - Computer Engineering,
Istanbul Technical University
2017 – 2021 | Istanbul, Turkey
GPA 3.33

ACHIEVEMENTS

Google Hashcode 2021 Qualification,
122th place globally, 3rd place Turkey

OBSS - Code Master - 2021, *2nd Place*
Istanbul, Turkey

Turkish Programming Contest 2019, *13th place*
Sep 2019 | Istanbul, Turkey

METU Computer Club 22nd Programming Contest, *Finalist*
Apr 2019 | Ankara, Turkey

HUPROG'19, *Finalist*
Apr 2019 | Ankara, Turkey

KU++ 2018, *Finalist*
Apr 2018 | Istanbul, Turkey

Rocket Competition - TEKNOFEST 2021,
Finalist

SKILLS

- C
- C++
- Embedded Linux
- Golang

PROJECTS

Linux Kernel Module Using hrtimer Library, *Antsis Electronics* 2020
This project aims to transmit UDP packets with 2 ms interval. An User space program can not achieve this timing, so I have written a kernel module with hrtimer to achieve this. Kernel module creates a character device and user space program writes data to it, then module transmit data with correct timing. I have compiled module using Yocto.

Selecting DVI Receiver and Porting Suitable Driver for Linux Kernel, 2020
Antsis Electronics
In Antsis Elektronik they had developed Antsis Video Encoder, this module captures, encodes, and serializes incoming analog PAL/NTSC.

My purpose in this project was adding DVI input with selecting suitable chip and finding or writing Linux drivers. I did not have to write Linux drivers from scratch because I have found a driver written for another version of Linux kernel and I have ported it to our Linux kernel.

Ground Station and Satellite Software with Qt and C++ for Turksat Satellite Model Competition 2020
I have implemented a Two-way communication protocol using Xbee 802.15.4 modules and Raspbery Pi Zero W. Communication model consist of three layers:
- First layer for communicating with Xbee in API mode using UART.
- Second layer defines Command, Data and ACK packages.
- Third layer is application (ground station or satellite).

GitHub link
We got the 6th place at the competition, I was not officially on the team.

Modifying Streamer Application, *Antsis Electronics* 2020
They had developed an application named "Streamer" for Linux. Streamer is an application that gets a video from a source and stream video over RS422 or Ethernet using gstreamer libraries.

I modified that application for working with multiple sources and I have ported that application to Petalinux.

Linux I2C and SPI Helper Functions, *Antsis Electronics* 2019
I have coded functions to using SPI & I2C Linux drivers with less effort. This functions used in other projects like "Eve Screen Designer Linux HAL implementation". For an another example, my coworker have wrote code to drive LTC4100(Smart Battery Charger, uses I2C) with STM32, then I have ported that code to Linux easily with I2C functions that I coded. *GitHub Link*

Eve Screen Designer Linux HAL Implementation, *Antsis Electronics* 2019
This project aims to control an SPI Display(FT813) with a Linux device. Display producer gives a tool named "EVE Screen Designer" to design applications for display. It generates C code from design. But it's standard HAL libraries is limited and there is no support for Linux. I have coded Linux HAL using Linux SPI driver based on Arduino HAL. *GitHub link*