Utkarsh Verma

Full Stack Embedded Developer
IIITDM - Kancheepuram

- Prayagraj, UP, India
- utkarsh.works
- github.com/UtkarshVerma
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- bitbanged.com

About Me

My fascination with technology has propelled me onto various projects spanning hardware and software developments. I have come up with numerous systems of everyday utility, gathering a diverse skill-set to help me approach problems from a unique viewpoint. I am at my best when I get my hands dirty building something. I look forward to new challenges and devising innovative solutions.

Skills

Electronics
PCB Design, AVR Microcontrollers, IoT, Prototyping

Linux
Software Development, Continuous Integration, Automation

Programming
Go, C, Assembly, BASH, Python, MATLAB, NodeJS, Verilog, Rust, Java

Web Development
HTML, CSS, JS, Hugo, SCSS

Writing
Markdown, LaTeX

Interests

Low-level Languages
Computer Architecture
Embedded Systems
Software Development
Linux
Internet of Things
Static Websites

Note
Please click on the headings to visit respective links.

Education

Jul 2019 – Present

B.Tech in Electronics and Communications Engineering
Indian Institute of Information Technology, Design and Manufacuring, Kancheepuram

- Courses: Analog Circuits, Analog and Digital Communications, Control Systems, Computer Architecture, Digital Logic, Digital Signal Processing, Embedded Systems, Digital Computer Networks
- CGPA: 9.11/10

Work Experience

Jul 2022 – Oct 2022

GET_INvolved Intern — GSI Helmholtz, Germany
Worked on improving the timing precision of the DiRICH boards used in the PANDA Barrel DIRC. Also worked on the CLI software and automating parts of the data acquisition process.

Dec 2020 – Mar 2021

Junior Embedded Systems Engineer — Dextroware Devices
Worked at an assistive technology startup. Designed the schematic and prototype for a hands-free input device. Also did the R&D for the next stage of work. Extended my experience with Atmel MCUs and RF circuits.

Dec 2020

Full-stack Developer — Darmiyaan
Developed a static, multilingual website for the Darmiyaan podcast. It is highly performant and prioritizes accessibility and SEO.

Dec 2020 – Mar 2021

Leader - Communications Team — MaRS, IIITDM
Worked on the communications aspect of the rover and researched on long-range communications.

Nov 2017 – Jan 2018

Student Contributor — Google Code-in
Got introduced to FOSS and contributed to various open-source projects under OpenWISP. Became familiar with software development. Finished in the Top 10 participants under OpenWISP.

Projects

Mar 2021

8-bit Computer
Arduino, Prototyping, Assembly
A fully-functioning 8-bit computer built on breadboards. It has its own instruction set and a bootloader which are programmed using Arduino.

Dec 2021

Interfacing OLED Display with ATmega in Assembly
AVR Assembly, Prototyping
A project written in assembly where an OLED display and SD-card modules are interfaced with ATmega328P using SPI and I2C.

Mar 2020

Holonomic Drive Robots
Robotics, 3D modelling, Prototyping
Developed two holonomic drive robots. These are designed to play Robo rugby as per the norms of Robocon 2020.

Mar 2018

Line Follower Robot
PCB Design, C
A robot built up from scratch which has PIC16F84A as the brain, coded in Basic C. It uses software-generated PWM to control motor drivers.

Oct 2021

dwmblocks-async
C, Linux
An asynchronous, CPU efficient status bar for dwm (Linux) written in C. It utilises Linux specific constructs like `epoll`, signals and pipes.

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Aug 2021 — **qemu-vfio-win10**
Shell Scripting, Linux, QEMU
A script I wrote to start my Windows 10 VM with GPU passthrough on my laptop. The script utilises various aspects of the Linux kernel such as VFIO, dynamic module binding, input redirection, etc.

Feb 2018 — **Losant Temp Sensor App**
IoT, JS
An app for Mongoose OS which periodically sends ESP32's temperature readings to Losant's servers for plotting a graph.

Dec 2017 — **ESPer**
PCB Design, IoT, Prototyping
An easy-to-make, mini-sized, DIY development board for ESP32 SoC. It is an open-source project available on GitHub.

Aug 2017 — **BluFi**
PCB Design, Prototyping
A DIY Bluetooth audio adapter for making wired headsets or speakers wireless. It also provides a wireless microphone.

Jul 2017 — **Convertendo**
Prototyping
A mini audio adapter which makes any wired earphone compatible with your devices.

Feb 2021 — **AR Tag Detection**
Computer Vision, MATLAB, DSP
Project which uses Sobel edge detection to decode AR tag data.

May 2020 — **BitBanged**
HTML, SCSS, JS, Hugo, Continuous Integration, NodeJS, Markdown, LaTeX
A static blog fully optimized for performance and search engines. Also employs its dedicated commenting system using Staticman.

Sep 2021 — **Hugo Yami**
HTML, CSS, Hugo, NodeJS, Continuous Integration
A Hugo theme which I developed for my portfolio. It takes data in YAML form and generates a website and a resume.

Apr 2020 — **qGmail**
Go, Software Development, Continuous Integration
A command-line tool, written in Go, for fetching data from Gmail servers using Gmail API. Uses Go reflection to auto generate CLI from the API schema.

Mar 2021 — **hugo-mod-svg-icon-system**
Hugo module for implementing a hassle-free SVG icon system in Hugo.

Dec 2019 — **Yaru Dark Theme for Firefox**
A dark theme to port Ubuntu's Yaru Dark theme to Firefox which is written in CSS.

Feb 2019 — **Ecosia Darker**
A dark theme for Ecosia, the green search engine. It is an open-source project written in CSS. Check it out on GitHub.

Jun 2021 — **Mars Rover Society Website**
A fast and sleek website built to showcase the work done by the team on their rovers.

Apr 2018 — **Hugo Dream Plus**
An open-source theme for Hugo, the static website generator. It is written in HTML, CSS and using Go templates.

Extracurricular Activities

I believe in serving the community through my discovery, learning, and engagement. Also, I frequently contribute to open-source software and sharing my

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Dec 2020 – Jan 2021	**Vidhai**	Social outreach

I volunteered to develop a website for Vidhai - a non-profit student-run organisation focused on educating underprivileged children. The website hosts educational content and extends the club's outreach.

May 2020 – Present	**BitBanged**	Blogging

This is my blog where I write about electronics and programming from time to time. It is an independent website designed by me.

Jan 2018 – Present	**Instructables**	Content creation

Apart from blogging, I also like documenting what I make. My articles on PCB making and prototyping tools got featured on this website.

Apart from these, I like playing chess, table-tennis and football. I also like cycling and going out on occasional walks in nature.