

HARSH BHOSALE

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Education

Veermata Jijabai Technological Institute (VJTI)

Bachelor of Technology in Electronics – CGPA: 8.35

July 2021 – Present

Mumbai, Maharashtra

Relevant Courses

- Data Structures and Algorithms.
- Digital Signal Processing, Microprocessor and Microcontroller, Digital Sequential Circuits, Analog Integrated Circuits
- Building a RISC-V CPU Core by edX.

Competitions

Swatchatta Bot, IIT Bombay 🏆 | *Verilog HDL, Control Systems*

August 2022 – May 2022

- Developed a Bot for deployment on an arena which is an abstraction of a Smart city, the bot had a functionality of **Line Following** and **Path Planning**.
- This FPGA based robot is able to traverse the arena, sense the environment, collect and dispose of the waste. It uses wireless communication techniques using **Xbee Zigbee** module which works on **UART** protocol.
- Used sensors like **Line Sensor**, **Colour Sensor** and actuators like **Servo Motors** for waste type sensing, collecting and dumping mechanism.
- Lead a team of 4 and achieved **7th** rank.

Projects

Image Processing on FPGA 🏆 | *Verilog HDL, Digital Signal processing*

August 2022 – October 2022

- Implemented **JPEG** compression algorithm using Verilog HDL on FPGA.
- Applied algorithms like **Quantization** and **Discrete Cosine Transform** to an image.
- **Finite state Machine** and **Pipelining** approach was used for computation.
- This implementation on FPGA was able to attain **70% Image compression** results and faster processing, with minimal perceptible difference between RAW and compressed image.

Technical Skills

Languages: C, C++, Python, Verilog HDL, SystemVerilog, RISC-V ISA

Developer Tools: Linux, Git, Github, VS Code, Jupyter Notebook

Technologies: Raspberry Pi, ESP 32, Arty A7 35T, Arduino

Leadership / Extracurricular

Sahaja Yoga meditation 🏆 | *Volunteer*

January 2018 – Present

- **Guided** and **taught** meditation to new practioners.
- **Organised** meditation programs in 3 engineering colleges for students and staff members.

Society of Robotics and Automation (SRA), VJTI 🏆 | *Electronics Head*

July 2022 – Present

- Looked after the **procurement** and **quality testing** for Wall-E 2.4
- **Mentored juniors** in Eklavya Mentorship program
- **Conducted Workshops** like Wall-E(Self-balancing bot) and Mario(3-DOF Manipulator) for over 200 Freshmen.