Saish Karole

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Education

Veermata Jijabai Technological Institute (VJTI) Mumbai, India
B.Tech in Electronics Engineering - ***CGPA: 8.52*** *Nov. 2022 – Present*

- Relevant Coursework - Digital Electronics, Engineering Mathematics, Measurements and Instrumentation , Microprocessor and Microcontrollers, Signals and Systems.

D.A.V Public School New Panvel, India
Completed High School Education *June. 2010 – May 2022*

- An aggregate of 98% in 10th board exams and 95% in 12th board exams (CBSE board)

Competitions

e-Yantra Robotics Competition (eYRC), IIT Bombay - Semi-finalists Aug. 2023 – Mar. 2024
Team Member *Github Link*

- Constructed a Pick and Place and Line Following robot to use in an arena that represents an scenario of a space station
- Implemented a single cycle RISC-V RV32I core, written in Verilog HDL that can execute C codes, compiled into hexadecimal instructions for the CPU using the RISC-V cross-compiler
- Executed a Dijkstra's Algorithm written in C on the RISC-V CPU to find the shortest path between two locations in the arena and navigation was achieved by a Line following Algorithm, implementing a PID controller for the same
- This was programmed on the DE0-Nano development board consisting of Intel Cyclone-IV FPGA with the help of Intel Quartus Prime Lite and Modelsim Altera

Projects

RISC-V RV32IM CPU on FPGA Aug. 2023 – Oct. 2023
Github Link

- Understood the internal working of a basic CPU core
- Designed a single-cycle RISC-V core in Verilog HDL from scratch and testbenches for the same
- CPU was tested on UPduino 3.0 board using Yosys suite and IceStorm toolchain by succesfully executing a fibonacci series by connecting output GPIOs to a Seven Segment display

Technical Skills

Languages: Embedded C , Python, C/C++, Verilog HDL, SystemVerilog, Markdown
Frameworks: Yosys, ESP-IDF ROS-Noetic, ROS-Humble, micro-ROS
Developer Tools: Git/Github/GitLabs, Docker, Icarus Verilog, IceStorm, GTKWave ,Intel Quartus Prime, Modelsim, Xilinx Vivado, VS Code
Libraries:NumPy, OpenCV
Other:Linux(Debian and Arch-based Distros), CMake, Makefile, Canva, Microsoft Office Suite

Extra-Curricular Activities

Society of Robotics and Automation, VJTI Aug. 2023 – Present
Active Member *Website link*

- Working with a team of 20+ members in following the ideology of knowledge transfer in the domains of Robotics, embedded systems, and machine vision through workshops, seminars, exhibitions, and mentorship program
- Conducted flagship workshops known as 'Wall-E','Pixels', and 'MARIO' teaching and guiding over 220 students in concepts ranging from self-balancing and line-following robots on ESP32, to computer vision and image processing, and ROS/micro-ROS for controlling manipulators.