Manya Malik

Third-year Electronic Engineering student with a 4.0 GPA and hands-on experience in FPGA development, Clean Room fabrication protocols, IoT systems, and programming. Currently collaborating on an FPGA project with guidance from an AMD engineer, developing skills in Verilog, Vivado, PCIe and timing analysis. Excellent teamwork experience, demonstrated by contributing to a group project led by N-TUTTOR. Passionate about electronics and software engineering, with a keen interest in programming and VLSI.

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GitHub: https://github.com/manya54

Portfolio: https://manya-malik.github.io/portfolio/

EDUCATION

Electronic Engineering BEng (Hons)

TU Dublin university (09/2023-present, expected graduation: 05/2027)
Grades:

- 1st year GPA: 3.97/4.0
- 2nd year GPA: 4.0/4.0

Leaving Certificate (Final secondary school exams)

Loreto College (09/2021-06/2023)
Points:

- 577/625

EXPERIENCE

FPGA Project Collaboration

AMD

05/2024 - Present,
Working under the mentorship of an AMD engineer to enhance technical skills in FPGA development. This collaboration provides invaluable exposure to industry-standard tools and a professional work environment, with regular communication with supervisors and progress presentations.

Achievements/Tasks

- Strengthened Python skills, using Pandas and Matplotlib to create a data analysis app.
- Conducted timing analysis using Vivado.
- Gave presentations to showcase my work.
- Currently furthering my FPGA skills by working on a project that involves debugging over a PCIe link using segmented configuration and enhancing my Verilog skills.

Data analysis application

- Developed a Python-based file analysis application to read in a data file and present it in a tabular format, providing options for generating different kinds of graphs.
- Designed with efficiency in mind, the application streamlines data analysis by creating a visual representation of extensive data.

Project member

N-TUTORR

09/2023 - 04/2024,
Worked on developing an Arduino-based water quality sensor as a part of a water sustainability project to analyse the campus lake, collaborating with interdisciplinary teams and integrating scientific knowledge.

Achievements/Tasks

- Worked with a team to create an Arduino based water quality sensor.
- Created visual data representations for presentations and meetings.
- Presented our work at the N-TUTORR Partners in Innovation and Change National Showcase and Conference at Croke park.
- Presented our work for the green campus evaluation of TU Dublin.

Weather station

Designed and implemented a smart weather monitoring system using multiple communication protocols for real-time data acquisition and transmission.

- The BME280 and DS18B20 sensors measure temperature, pressure, and humidity with the readings displayed on an LCD via I2C.
- SPI was used for LoRa integration which enables long-range transmission of the readings from the sensors.
- Wi-Fi hosts a web server to display sensor data in real time.
- Bluetooth allows readings to be accessed on a mobile device through a serial terminal app.

Tilt/orientation sensor system

Developed a 2D orientation sensing system using an ADXL335 analogue sensor and an Arduino with a successive approximation ADC PCB.

- Created a prototype on a Vero-board and tested it with an Arduino.
- Designed the ADC on Multisim and had the PCB manufactured.
- Acquired and processed real-time analogue voltage signals from the accelerometer's X and Y axes to determine board tilt.
- Implemented mathematical formulas using an Arduino to convert voltage outputs into angle measurements representing the vertical and horizontal orientation of the PCB.
- Validated circuit performance and minimized noise effects by conducting specialized testing in an anechoic chamber.

TECHNICAL SKILLS

Programming languages

C, Python (Pandas, Matplotlib, PyQt), Verilog, Java, Assembly (8051).

Testing and Measurement

Anechoic chamber testing (for EMC/noise reduction), Data Acquisition (DAQ), Oscilloscope, Multimeter, Function Generator.

Semiconductor fabrication and testing

Clean Room Protocol & Operation, MOSCAP fabrication and testing.

Semiconductor physics (intrinsic/extrinsic, p/n-type), BJT and MOSFET operation and biasing, amplifier design and frequency response, op-amp applications and limitations, feedback and stability analysis.

Embedded Systems & IoT

Arduino, Internet of Things (Bluetooth, LoRa, Wi-Fi, SPI, One-Wire, I2C), MSP430.

Network design (coursework and labs)

OSI/TCP-IP models, IPv4 addressing, subnetting (VLSM, CIDR), VLANs, STP, static/dynamic routing, routing protocols, wireless LANs, TCP/UDP, ICMP, Ethernet, switching concepts, router/switch configuration via CLI, and small-network setup/testing.

Tools & software

Multisim, Ultiboard, Vivado, MATLAB, GitHub.

Digital systems

Boolean algebra and Karnaugh maps, combinational and synchronous design (adders, multiplexers, flip-flops, counters, FSMs), static timing analysis, memory systems (SRAM, DRAM), and real-world interfacing (debounce circuits, PWM control, encoders).

SOFT SKILLS

- Teamwork
- Verbal and written communication
- Research
- Time management
- Critical thinking
- Problem solving

CERTIFICATIONS

1. MATLAB Onramp: by MathWorks.
2. Verilog HDL: VLSI Hardware Design Comprehensive Masterclass by Shepherd tutorials on Udemy.
3. Simulink Onramp: by MathWorks.
4. Control Design Onramp with Simulink: by MathWorks.

Seminars and workshops

1. Attended and presented at the **N-TUTORR** Partners in Innovation and Change National Showcase and Conference at Croke park (2024).
2. Attended the **Google** Algorithms workshop (2025).