Sharvesh S

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Education

SRMIST — Chennai, India
B.Tech., Biomedical Engineering (CGPA: 8.11)(Upto 4th Sem) — *2023 - 2027*

Nandha City School — Erode, India
Senior Secondary level (Score: 77%) — *2023*

The BVB School — Erode, India
Secondary School Examination (Score: 78.6%) — *2021l*

Programming Skills

Languages: Python, HTML

AI/ML: Retrieval-Augmented Generation(RAG)

Web Development: Frontend development with HTML

Operating Systems: Windows,

CAD Softwares

AutoCAD

Sketchup

OrCAD

KiCad

Embedded Systems

Arduino

Raspberry Pi

ESP32

Work Experience

Internship – Medsby — Coimbatore, India
Biomedical Engineer Intern — *June 2025 – July 2025*

- Gained hands-on experience with FDM 3D printers, including slicing, filament types, and calibration.
- Explored bioprinting concepts, including the use of bio-inks with living cells for printing tissue-like structures in medical research.
- Independently designed and 3D-printed a custom ultrasonic sensor case.
- Worked with design software such as **SketchUp** and **Meshmixer** for 3D modeling, repair, and refinement of models; prepared print files using **Ultimaker Cura** and **Anycubic Slicer**.
- Built a pick-and-place robotic arm using **Arduino Uno** and a joystick module, learning servo motor control, real-time interfacing, and gaining an introduction to Raspberry Pi basics.
- Developed simple GUI applications with **Tkinter**; applied **NumPy** for data operations and **PySerial** for embedded device communication.

Projects

- **CRISPR In Silico: LLM**
  - Addressed the major safety concern in CRISPR-Cas9 gene editing: unintended off-target cuts across the genome.
  - Developed an LLM-based system to analyze DNA sequence similarity and proactively flag risky regions.
  - Simulated Cas9 cutting activity *in silico* to predict biological outcomes of potential off-target edits.
  - Helped prevent harmful mutations that could affect essential genes or regulatory elements.
  - Improved on existing tools by modeling both the likelihood of a cut and its biological impact.
  - Established a foundation for integrating synthetic simulations into real-time gene editing workflows for safer designs.

Hand Reflex Action

- Reflex actions are quick, involuntary responses to stimuli that occur without conscious thought.
- A classic example is the hand withdrawal reflex, where the hand moves away when touching something hot or sharp.
- This behavior is controlled by a **reflex arc**, involving a sensory neuron, spinal cord, and motor neuron.
- The project simulates this natural reflex using an **Arduino**, **LM35 temperature sensor**, and **servo motor**.
- The LM35 detects rising temperature as a harmful stimulus, which is processed by the Arduino acting like the spinal cord.
- If the temperature exceeds a threshold, the servo motor is triggered to move the hand model away, imitating the reflex response.
- This project demonstrates how sensory input is instantly translated into motor output, reinforcing biological learning while showing how technology can effectively mimic human physiological processes.

Achievements/Activities

- National Yoga Competition Participant *Represented at the national level, showcasing discipline and physical fitness.*
- Swimming Champion *Won multiple events at school and college-level swimming competitions.*
- Basketball Achievements *Played at Sahodaya level, won inter-hostel competitions, and served as team captain in college.*
- U&Me State-Level Hackathon *Participated and gained exposure to real-world problem-solving in a competitive environment.*
- CRISPR Safety Project
  - Addressed major safety concerns in CRISPR-Cas9 gene editing by reducing off-target risks using AI.
  - Designed an LLM-based system to analyze DNA sequence similarity and flag risky regions.
  - Simulated Cas9 cutting activity *in silico* to predict biological outcomes of potential edits.
  - Improved on existing tools by modeling both cut likelihood and biological impact.
  - Established a foundation for integrating synthetic simulations into real-time gene editing workflows.