Pragatheswaran M

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Portfolio: pragz.vercel.app

Education

BANNARI AMMAN INSTITUTE OF TECHNOLOGY	Sathy, Erode
Bachelor of Engineering	Expected May 2026

Major in Biomedical Engineering
Cumulative GPA: 7.77/10.0

AVP TRUST NATIONAL MATRICULATION HIGHER SECONDARY SCHOOL	Tiruppur
Major in Bio- Maths	May 2022

HSC: 87%
SSLC: 80%

Skills

Programming Languages : C, Embedded C, Python (basics)
Technical Skills: Arduino IDE, HTML, MATLAB, Flutter, Microsoft Excel
Tools: Git/Github, Diptrace, KiCad
Languages: English, Tamil, Malayalam

Projects

1. **Health Monitoring System - IoT Experiment**   Dec 2023 – Jan 2024
   Team Size: 1   **Role:** IoT System Designer, Developer & PCB Designer
   Software: Arduino IDE Software, ThinkSpeak IoT Platform, Diptrace
   Hardware: ESP8266, MAX30100, Accelerometer
   Designed a real-time system using ESP8266, MAX30100, and accelerometer to monitor SpO2, heart rate, and temperature. Data was visualized on ThinkSpeak via custom PCB and wireless transmission.

2. **Automation of Ventilators with BVM Pumps**   Feb 2023 – April 2023
   Team Size: 1   **Role:** Embedded & Mechanical System Developer
   Software: Arduino IDE, Embedded C, Motor Control Algorithms
   Hardware: Arduino UNO, BVM (Ambu Bag), NEMA17 Stepper Motor, A4988 Motor Driver, Rack & Pinion Mechanism
   Built an automated ventilator using Arduino, stepper motor, and a rack & pinion to simulate manual BVM operation. Enabled programmable, hands-free airflow for emergency use.

3. **Integration of the Smart Wristband with Automated BVM Ventilator**   July 2023 – Sept 2023
   Team Size: 6   **Role:** System Integrator, Programmer & PCB Designer
   Software: Arduino IDE, ThinkSpeak IoT Platform, Embedded C
   Hardware: ESP8266, MAX30100 Sensor, Arduino UNO, NEMA17 Stepper Motor, A4988 Motor Driver, Rack & Pinion Mechanism, BVM Pump
   Integrated a health-monitoring wristband with an automated ventilator to adjust oxygen delivery based on live SpO2 data. Enabled cloud monitoring using ESP8266 and ThinkSpeak.

4. **Automatic Waste Segregation System**   Jan 2025 – April 2025
   Team Size: 4   **Role:** Embedded & Mechanical System Developer
   Software: Arduino IDE, Python (Flask server), TensorFlow (CNN model)
   Hardware: ESP32-CAM, NEMA 17 Stepper Motor, A4988 Driver, Tilting Plate, Dustbin
   Developed a smart system using ESP32-CAM and a CNN model to classify waste and control motor-driven segregation. Enabled real-time sorting of degradable and non-degradable waste

Ongoing Projects

AuraBand: Personalized Mental Health Recommendation System　　　March 2025 - Present
Team Size: 4
Software: Arduino IDE, App Developing Software(Blynk,Flutter)
Hardware: ESP32 / Raspberry Pi, MAX30100, Thermistor, GSR, Accelerometer / Gyroscope, OLED display
　　　　A wearable device that monitors stress indicators via sensors and offers real-time feedback through a
　　　　mobile app. Uses ESP32/Raspberry Pi, Blynk/Flutter, and OLED for interaction

Hackathon

ZEUS - The Automated Ventilator | BIT-HACK Finalist (Hardware Domain)　　　September 2023
- Developed a smart wristband-linked ventilator that adjusts oxygen flow based on live SpO2 data.
  Enabled real-time monitoring via ESP8266 and ThinkSpeak; selected as a finalist at BIT-HACK 2023

Medical Script Decoder | PEC-HACK Finalist hm　　　January 2024
- Illegible handwriting in **medical prescriptions** causes **medication errors** and disrupts **pharmacy workflows**. Using **machine learning** helps create smart, effective solutions.

Paper Presentation

INTERNET OF THINGS
Organized by: Hindusthan Institute of Technology
Date: April 2023

RECENT ADVANCES IN COMMUNICATIVE ELECTRONICS (NCRACE 2025)
Organized by: SRM TRP Engineering College
Date: April 2025

Extra Curricular Activities

- Earned **Brown Belt** in Karate (2017) showing strong skill and discipline.

- Played for Tamil Nadu Men's Handball Team in **SGFI** tournaments (2018, 2019).

- Won **Bronze** Medal at **State-Level Men's Handball Tournament** in Madurai (2020).

- Took 1st Place and "**Best Goalkeeper**" at 2nd State-Level Men's Handball Tournament (2022).

- Got **2nd** Place in **Zonal-Level** and **4th** in **CENTIS** tournament by Anna University (2023).

- Represented Erode District Men's team twice in **Under-19 State Championship** (2024).

- Competed in Senior Nationals Handball Championship, finishing 4th (2024).

- Chosen as goalkeeper for Erode District in **Chief Minister Trophy** at NIT Trichy (2024).

Leadership Activities

- Led a 6-member team in Bit Hacks hackathon
- Led a 4-member team in Sem 6 Mini Project
- Trained 40+ students in the field of HandBall for BIT handball team
- Served as State team captain, organizing state level matches, coordinating strategies, and encouraging team spirit.

Area of Interest

- PCB designing, Health Science, Medical Equipments
- Human Anatomy

Declaration

I Pragatheswaran, declare that all the details provided above are true to the best of my knowledge