SANANDA PATEL

Jharsuguda,Odisha / India | +91 6371625925 | patelsananda05@gmail.com | Linkedin

SUMMARY*

Aspiring electronics engineer with experience developing 20+ IoT home automation solutions in a startup environment. Proficient in microcontrollers like Arduino, ESP32, STM32, and Raspberry Pi Pico WH, with strong fundamentals in digital electronics and expertise in designing 4-bit counters. Skilled in working with MOS and BJT components, with a keen interest in advancing knowledge in VLSI design.

TECHNICAL SKILLS:

- **Microcontrollers:** Arduino (Uno, Mega, Nano), ESP32, STM32, Raspberry Pi Pico WH
- **Programming Languages:** C, Embedded C, Python, Linux Shell Scripting
- **Digital Electronics:** Design of 4-bit counters, proficiency in MOS and BJT components
- **Tools & Platforms:** GitHub, Makefiles, ADALM1000
- **Special Interests:** VLSI design, IoT-based embedded systems, BLE communications

PROFESSIONAL EXPERIENCE

NEWRAL DELHI / I N D I A

Chief Hardware Engineer

0ct-2024 / Jan-2025

Pioneered innovative hardware solutions, focusing on IoT and embedded systems, while driving product development from concept to deployment. Collaborated cross-functionally to design efficient, reliable hardware architectures that align with market demands and technological trends, ensuring the company stays ahead in the competitive IoT landscape.

Project 1

- Designed a **4-bit binary counter** and a **decimal counter** using **74LS163 counter IC**, **74LS85 adder IC**, **74LS83 comparator IC**, logic gate ICs, and a **7-segment display**, demonstrating expertise in digital circuit design.

Project 2

- Developed a **customized PCB** with **Arduino integration** for an **industrial UV light** in the IoT domain, incorporating an **ultrasonic sensor** for enhanced functionality and automation.

LEADERSHIP EXPERIENCE

IITM DIY CHENNAI / INDIA

MENTOR Oct 2024 / January 2025

- As a core member of IIT Madras DIY, part of the IITM School Connect program, I mentored 50+ school students from grades 11 and 12 in building their first bots using microcontrollers like ESP32, Arduino, and Raspberry Pi Pico WH.
- Guided students through practical, hands-on learning experiences, enhancing their understanding of embedded systems, robotics, and electronics
- Played an instrumental role in developing and leading workshops, fostering a collaborative and innovative learning environment for young aspiring engineers

EDUCATION

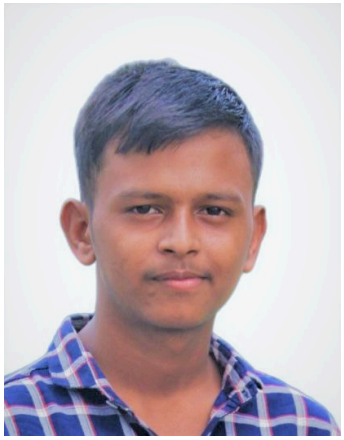
BS in Electronic Systems ***(2024-2028)***

INDIAN INSTITUTE OF TECHNOLOGY MADRAS (IIT MADRAS)

SELF RESEARCHED PROJECTS

- Master-Slave Control System: Designed using ESP32 (master) and Arduino (slave) with NRF24L01 modules, controlling LEDs and later adapted for RC motor control using L298 motor driver.
- BLE Broadcasting System: Developed an ESP32-based device to broadcast messages via BLE, controlled through a web interface over WiFi.
- tDCS Device with EEG Integration: Built an IoT-based transcranial Direct Current Stimulation (tDCS) system using ESP32 with EEG sensor integration for brain wave monitoring.
- MOSFET-based Motor Control: Implemented CJ3400 (N-channel) and SI2301 (P-channel) MOSFETs for BO motor control.

भारतीय प्रौद्योगिकी संस्थान मद्रास, चेन्नई - 600036
(शिक्षा मंत्रालय के अंतर्गत एक स्वायत्त संस्थान, भारत सरकार)
Indian Institute of Technology Madras, Chennai - 600036
(An autonomous Institution under Ministry of Education, GoI)



Name :**SANANDA PATEL**

Level :**FOUNDATION**

Program :**BS in Electronic Systems**

Roll No :**24F2100239**

ID card Validity:**Jan 2025 - Dec 2025**

Authorised by

Mobile:**+916371625925**

Blood Group: **O +ve**

Residential Address:
CHIKHILAPALI,PANCHGAON,JHARSUGUDA,ODISHA INDIA 768226

JHARSUGUDA,Odisha,INDIA - 768226

Date of Birth: **2006-02-14**

Card Holder: Sananda Patel

BS Degree Office, 3rd Floor,
ICSR Building, IIT Madras,
Chennai - 600036

https://study.iitm.ac.in/es/
7850-999966 (Mon-Fri 9am-6pm)

Indian Institute of Technology Madras

PROGRESS CARD

Name: SANANDA PATEL Roll Number: 24F2100239

Program:BS in Electronic Systems

Current Level: FOUNDATION

Term	Course	Title	Credit	Category	Grade
MAY 2024	HS1101	English I	4	FL	C
MAY 2024	MA1101	Math for Electronics I	4	FL	C
MAY 2024	EE1101	Electronic Systems Thinking and Circuits	4	FL	C
MAY 2024	CS1101	Introduction to C Programming	5	FL	B
MAY 2024	EE1104	Electronic Systems Thinking and Circuits Lab	1	FL	A
SEP 2024	EE1102	Basic Digital Systems	4	FL	E
SEP 2024	EE1103	Electrical and Electronic Circuits	4	FL	C
SEP 2024	EE1105	Electronics Lab	3	FL	A

Coordinator
IIT Madras BS Program

Date: 06 March 2025

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Indian Institute of Technology Madras

PROGRESS CARD

Name: SANANDA PATEL Roll Number: 24F2100239

Program:BS in Electronic Systems

Current Level: FOUNDATION

Cumulative Grade Point Average (CGPA) Summary

Category	Foundation Level (FL)	Diploma - Level (DL)	Degree - Level (BS)	Total
Min. Required Credits	44	43	56	142
Earned Credits	29	0	0	29
Transferred Credits Φ	0	0	0	0
CGPA	7.03	0	0	7.03

Φ Transferred Credits are not considered for CGPA calculation.Transferred Credits + Earned Credits should meet the total credit requirement

Coordinator
IIT Madras BS Program

Date: 06 March 2025

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BS in Electronic Systems

Grade		Remarks
Code	Points	
S	10	---
A	9	---
B	8	---
C	7	---
D	6	---
E	4	---
U	0	---
P	0	Pass
F	0	Fail
WA / WQ	0	Not eligible for Exam
I	0	Course Incomplete

Grades 'S' to 'E' and 'P' indicate successful completion of course.

The Grade of course(s) under the Pass/Fail category are not included towards CGPA Calculation.

$$\text{CGPA} = \frac{\sum_i (C_i \times GP)}{\sum_i C_i}$$

where C_i = credit of the course

GP = Grade point for that course, and

$\sum_i$ = is the sum over all registered courses succesfully cleared during all the semester including those in which the student obtained 'U' and 'W' grades but not cleared.

The medium of instruction is English at this Institute

The formula for converting CGPA to percentage is **Percentage = CGPA x 10**