SHIVAM MAHESH POTDAR

Electrical and Electronics Engineering Undergraduate, NITK Surathkal

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EXPERIENCE

Department of Computer Science and Engineering, IIT Bombay

Project Intern, Smart Energy Informatics Lab

🗓 Jul '19 - Present

- Implementation of an IoT based Smart Brown Box for smart power distribution management to prevent blackouts, and convert them to brownouts. Implemented on NodeMCU using various sensors.

Department of Electrical Engineering, IIT Bombay

Summer Research Intern, Wadhwani Electronics Lab

🗓 May '19 - Jul '19

- Construction, verification and testing of digital circuits on Altera MAX V based PLD using VHDL

PUBLICATIONS

- Shivam Mahesh Potdar, Pruthviraj Umesh and K V Gangadharan (January 2020). "Conceptualization and Design of Remotely Accessible Hardware Interface (RAHI) Lab". In: *Proceedings of the 8th International Conference on Frontiers of Intelligent Computing : Theory and Applications (FICTA 2020), Springer Advances in Intelligent Systems and Computing (AISC) Series (SCOPUS Indexed) (accepted by peer-review and presented)*.

PROJECTS

Smart ID Cards System for NITK

🗓 Jan '20 - Present

- RFID based ID Cards system with custom controller device
- Embedded Systems, PCB Design, IoT

Balancing Bot

🗓 Dec '19 - Present

- Biped balancing bot with LQR controller, for e-Yantra Robotics Competition (IITB) 2020
- Embedded Systems, PCB Design, Control Systems

8-bit Microcontroller implementation on FPGA

🗓 Aug '19 - Present

- Starting with basic building blocks of an MCU viz ALU, registers, RAM etc., add features incrementally.
- VHDL, FPGA, Computer Architecture

Connected, Hybrid and Smart Renewable Energy System

🗓 Jul '19 - Present

- Hybrid solar and wind energy management system for homes, with maximum optimisation using sun tracking and MPPT
- Smart control, integration and monitoring based on various parameters through IoT

AREAS OF INTEREST

Digital VLSI Computer Architecture
Open-Source Silicon
Embedded Systems
Embedded AI and ML

SKILLS & TOOLS

PCB Design SPICE Embedded C
Verilog / VHDL ML with Tensorflow
MATLAB / Octave Simulink Python3
C/C++ RPi/AVR/ESP/TI MSPs
Django2 OpenCV

EDUCATION

B. Tech. in Electrical and Electronics Engineering

National Institute of Technology, Karnataka, Surathkal

🗓 July 2017 - April 2021 (Expected)

CGPA - 8.54/10

Class 12th

Kendriya Vidyalaya, Vayusena Nagar, Nagpur

🗓 May 2017

97.6/100

Class 10th

Kendriya Vidyalaya, 9BRD AFS, Pune

🗓 May 2015

94.8/100

ACHIEVEMENTS

🏆 **Winner, Coding Hackathon 2k18**
Organised by IoT Club, NMAMIT Nitte. Won a cash prize of ₹10000

🎓 **Nagpur District Topper, CBSE Class 12th**
97.6%. Top 1.5% all over India. First Rank in KV Sangathan Jabalpur Region as well. ₹5000 cash prize from CBSE

✿ **Represented Kendriya Vidyalaya Sangathan at JNNSMEE-2016**
National Level Science Exhibition organised by NCERT at BIEC Bengaluru, Dec. 2016

- Arduino, Energy Informatics, Power Electronics

Remote-Triggered Hardware Learning Platform

📅 Jan '19-Apr '19

- Project for the RT-Labs, Centre for System Design, NITK
- Platform for students to learn Python coding for electronics with Raspberry Pi on actual device with visual feedback without the need of physical access to the device.
- RPi, Django2, Python

Thirsty Crow Robot

📅 Dec '18-Feb '19   ☐ Link

- For e-Yantra Robotics Competition 2018, IIT Bombay
- Line following bot with path planning on hexagonal grid arena with OpenGL animations of the movement using Aruco markers
- ATMEGA2560, OpenGL, OpenCV, PCB Design, Path Planning

Cloud Tracking using Satellite Imagery

📅 Jan '19-Apr '19   ☐ Link

- Mini Project under Dr Yashwant Kashyap, EEE Department, NITK
- Processing of coloured and cloud optical thickness satellite imagery over a time period and predicting the movement of clouds
- MATLAB, SVM classification, Image processing

Remotely Monitored Weather and Intrusion Detection

📅 Jun '18-Jul '18   ☐ Link

- Collecting data from temperature and humidity sensor and PIR sensor (intrusion), and publishing it to a website
- Arduino, ESP8266, digital sensors interfacing, basic web development, HTTP requests, serial communication, ThingSpeak API, AT commands

RELEVANT COURSES

Current Semester :

- 📓 VLSI Design, NITK (ECE)
- 📓 Computer Organization and Architecture, NITK (CSE)
- 📓 Digital System Design, NITK (EEE)
- 📓 Machine Learning, NITK (EEE)

Completed Previously :

- 📓 Applications of Machine Learning Techniques to Medical Image Analysis
- 📓 Sensors and Actuators, SWAYAM (NPTEL)
- 📓 Embedded System Design, NITK (ECE)
- 📓 Digital Signal Processing, NITK (EEE)
- 📓 Microprocessors, NITK (EEE)
- 📓 Power Electronics, NITK (EEE)
- 📓 Linear and Digital Control Theory, NITK (EEE)
- 📓 Open Source Virtual Instrumentation, NITK (AM)
- 📓 Digital and Analog Electronics, NITK (EEE)
- 📓 Python for Everybody, Coursera
- 📓 Python Data Structures, Coursera
- 📓 DrishTI Microcontrollers, Texas Instruments

LANGUAGES

English, Hindi, Marathi

ACTIVITIES

- Student Coordinator, Embedded Systems and Robotics Lab at NITK (e-Yantra Lab Setup Initiative, IIT Bombay)
- Delivered a talk on Research Internships to junior students
- Mentored 30 first year students of NITK in Embedded Systems and IoT, Summer of '19
- Executive Member, ACM NITK Student Chapter and Flying and Robotics Club NITK
- Product Manager, IRIS NITK
- Organising Member, Engineer '18 and '19 (NITK Techfest)

REFEREES

Dr. Pruthviraj Umesh
@ pruthviu@nitk.edu.in
✉ Assistant Professor,
Centre for System Design &
Department of Applied Mechanics and
Hydraulics,
National Institute of Technology
Karnataka, Surathkal

Dr. Yashwant Kashyap
@ yashwant.kashyap@nitk.edu.in
✉ Assistant Professor,
Department of Electrical and Electronics
Engineering,
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Karnataka, Surathkal

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