HARSHAD ZADE

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PROJECTS

Sahayak[Video]

📅 April'2020 - February'2021   ◉ IvLabs [Link]

- A teleoperated differential-drive robot to deliver food packets and medicines to the COVID patients. Doctors can interact with patients from a safe distance using the onboard video conferencing system.
- Developed the first version of this robot in the difficult times of lockdown, just in a span of 10 days and deployed it at **All India Institute Of Medical Sciences (AIIMS), Nagpur**.

Reconfigurable Quadrupedal-Bipedal Snake Robots[Video]

📅 October'19 - November'20   ◉ IvLabs

- Designed snake robots capable of re-configuring into quadraped and biped without re-arrangement of any modules.
- ReQuBiS is capable of achieving Best of All Worlds by overcoming the disadvantages and leveraging the advantages of individual mobility modes.
- This project was mentored by **Rohan Thakker, NASA-JPL, Caltech, USA**.

MULTI AGENT WIRELESS SENSOR NETWORK[Link]

📅 December'18 - April'19   ◉ IvLabs

- Implemented a mesh network based on IEEE 802.15.4 to establish consensus in a swarm of robots.
- Established handshake using Atmega328p as well as TIVA TM4C123GXL launchpad.

LASER SECURITY SYSTEM[Link]

📅 June-July'18   ◉ IvLabs

- Implemented a laser security system with push notifications capability and real-time monitoring.
- Designed the hardware using Arduino Uno and used ESP8266 for notifications and Raspberry Pi0 for IP camera. Implemented the firmware using Arduino IDE and Raspbian.

HARMONIC MOTION ANALYZER

📅 March-April'18   ◉ IvLabs

- MATLAB based program to analyze motion equation and parameters. Designed an algorithm for tracing path of a damped oscillator.

EDUCATION

🎓 Bachelor of Technology (Metallurgical & Materials)

Visvesvaraya National Institute of Technology[Link]

📅 2017 – 2021   ◉ Nagpur

- Cum.GPA 7.88/10

ACHIEVEMENTS

- 2nd runner up in image processing task at Techno-Season'18, IV Labs, VNIT, Nagpur.
- Awarded the "Best Athlete '17-18" in VNIT.
- Represented VNIT, Nagpur at "All INDIA INTER-NIT SPORTS MEET'19".

TECHNICAL SKILLS

⚙ Software and Libraries

`Chrono` `KiCad` `SYS/BIOS (TI-RTOS)` `ROS` `Solid Works` `Code Composer Studio`

Tools

`ARM Processors` `AVR Atmega family` `Arduino` `Zigbee` `Bluetooth` `Wi-Fi`

`</>`Programming

`C` `Embedded C` `Python`

≡Misc. Tools

`LaTeX` `Git`

PUBLICATIONS

👥 **Conference Papers**

- **Harshad Zade**, Aadesh Varude, Karan Pandya, Ajinkya Kamat, Shital Chiddarwar,and Rohan Thakker.
  ReQuBiS - Reconfigurable Quadrupedal-Bipedal Snake Robots [Link] CASE'2021
- **Harshad Zade**, Mayuresh Bhoyar, Mayuresh Sarode, Neha Marne, Unmesh Patil, Vedant Ranade, and Ajinkya Kamat.
  OLSAC: OPEN-SOURCE LIBRARY for SWARM ALGORITHMS and COMMUNICATION [Link] ICAME'2020

COURSEWORK

- TI-RTOS Workshop Series
- An Introduction to Programming the Internet of Things (IOT) | Coursera*
- Control of mobile robots | Coursera*
- Multivariate calculus
- Numerical methods and computation

ACTIVITIES

- **Technical secretary** at IvLabs.
- **Project mentor** of some summer interns at IvLabs.Link
- **Volunteer** at IEEE VNIT CHAPTER to conduct workshops on topics like micro-controllers, circuit and PCB designing, manual robotics, etc.
- **Sports Secretary** at the Department of Metallurgical and Materials Engineering, VNIT, Nagpur.