

EDUCATION

Bachelor's degree in Electronics Communication and Information Engineering Nov, 2018 – Aug, 2023
Tribhuvan University, IOE Eastern Region Campus | Dharan, Nepal

WORK EXPERIENCES

Research & Development Engineer June, 2023 – Present
Orion Space PTV. LTD., Kathmandu, Nepal

- Embedded System, Communication system and Electrical Power Subsystem design of PocketQube.
- Sensor interfacing, Deconstruction and Testing for Pico/Nano satellites.
- Firmware & Mission design for Low Voltage / High Frequency systems and Testing.

Undergraduate Researcher Jan, 2020 – May, 2023
Robotics Club, IOE Purwanchal Campus

- Control, System identification and Mathematical modelling in Two wheeled Robots.
- Computer Vision and Robot Perception with ROS
- Involved in Other Projects like Robotic arm, Drone Control systems, CNC Machines etc.

TECHNICAL SKILLS

- Embedded System Design
- Satellite System Design
- Control System Design
- Robot Perception & Vision
- Robotics & IOT
- Signal Analysis and Processing
- **Software:** Robot Operating system (ROS), MATLAB/Simulink, KiCad, Fusion360, GNU Radio & HFSS
- **Programming:** C/C++, Python
- **Others:** Linux, Git/Version Control

PUBLICATIONS

Baskota, G., **Devkota, R.**, Paneru, S., Yadav, S., Neupane, D., Dhakal, O. **Analytical and Experimental Approach for Modeling, Simulation and Validation of Two-Wheeled Self-Balancing Robot** 2023 ICICT, IEEE.

Paneru, S., Yadav, S., **Devkota, R.**, Baskota, G., Guragai, M. K., Dhakal, O. P., Neupane P., Shrestha, A. **Mapping and Localization of Mobile Robot with Monocular Camera Using VSLAM.** Int. J. Adv. Engr. 2023, 6(2), pp.24-36.

PROJECTS AND RESEARCHS

Design and Development of fully functional PocketQube for Nepal (SANOSAT-2). | Ongoing

- Upgrade on SANOSAT-1.

Mathematical Modelling, Simulation and Validation of Permanent Magnet DC Motor

- Second Order Modelling of Cheap PMDC for Robot.

Modelling, Simulation and Validation of Two Wheeled Self-Balancing Robot

- Control system design and mathematically modelling of the robot along with all its components

Comparison of controls for balancing Two Wheeled Self-Balancing Robot

- Comparison of classical & optimal controller for balancing Two wheeled robot in MATLAB/Simulink

Mapping and Localization of Mobile Robots with Monocular Camera using V-SLAM.

- Implemented SLAM in fabricated robot with monocular USB camera.

Autonomous multi-colored line follower and Maze Solver robot

- Multi-colored wall-line maze solver robot with camera assistance for decoding information

Firmware development for environmental sensing IoT system.

- Developed C++ Firmware with implementation of MQTT protocol as well as energy saving mode.

Vegetable Grading Machine

- Developed a computer vision algorithm and robotic systems for grading and categorizing different sizes of vegetables, in collaboration with Swiss-contact's SAHAJ Project and DELTA 3.0.

PRESENTATIONS

- Analytical and Experimental Approach for Modeling, Simulation and Validation of Two-Wheeled Self-Balancing Robot. | ICICT 2023
- Comparison of Controls for Two wheeled Robots| DELTA 2020
- PCB Designing and Fabrication Process. | YARSA 2023
- AI and IOT in Agriculture. | DELTA 2020

HONOURS & AWARDS

- First Runner Up in Model Based simulation using MATLAB/SIMULINK at DELTA 2.0 | 2021
- Winner of Yantra 8.0 Automatic Akhada (Autonomous path solving Robo on Raspberry Pi) |2020
- First Runner up in Robo race at VECTOR 2.0 | 2020
- Winner on Robo War & Robo Race at PRAYOG EXPOSITION | 2019

NOTEABLE LEARNING

KARI International Space Training 2023

11 Sept – 15 Sept, 2023

Korea Aerospace Research Institute

- Gained insights into satellites, satellite system engineering, orbital mechanics, and more

SEEDS FOR THE FUTURE

29 Nov – 6 Dec 2021

Nepal's First Seeds for Future Program By Huawei

- Learned about 5G, AI, Cloud technologies, and developed Tech for Good projects.

Deep Learning Specialization

15 Jul – 29 Aug, 2020

Deeplearning.AI

- Studied foundations of deep learning, neural networks, CNNs, and sequential models like Hyper Parameter tuning, Regularization and Optimization.

VOLUNTEERING & LEADERSHIP

Event Coordinator

Jan 11 - 13, 2023

X-Tech Studio 3.0

Advisor

Jun 2022- Mar 2023

Electronics & Communication Engineering Student Society (Excess)

Secretary

Jun 2021- Jun 2022

Electronics And Communication Engineering Student Society (Excess)

Member

Sep 2020 – Present

Robotics Association of Nepal (Ran)

Member

Sep 2018 – June, 2023

Robotics Club, IOE Purwanchal Campus

REFERENCES

Asst. Prof. **Deependra Neupane** | Mentor
deependra@ioepc.edu.np

Institute of Engineering, Eastern Regional Campus
HOD, Department of Electrical Engineering

Asst. Prof. **Manoj K. Guragai** | Supervisor
manoj@ioepc.edu.np

Institute of Engineering, Eastern Regional Campus
Professor, Department of Electronics & Computer Engg.

Asst. Prof. **Pukar Karki** | Professor
pukar@ioepc.edu.np

Institute of Engineering, Eastern Regional Campus
DHOD, Department of Electronics & Computer Engg.