

Bibek Shrestha

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Education

Tribhuvan University, IOE, Pulchowk Campus <i>Msc. in Renewable Energy Engineering</i>	March 2025 – Lalitpur, Nepal
Tribhuvan University, IOE, Pulchowk Campus <i>Bachelor of Mechanical Engineering (74.65 %)</i> <ul style="list-style-type: none">• Elective I: Heating, Ventilation, and Air Conditioning• Elective II: Refrigeration• Elective III: Building Services	Nov 2019 – May 2024 Lalitpur, Nepal
Xavier International College, NEB <i>+2 Science, Physical (CGPA: 3.39 / 4.00)</i>	2017 – 2019 Kathmandu, Nepal

Experience

Research Centre for Applied Science and Technology (RECAST) <i>Research Assistant</i> <ul style="list-style-type: none">• Leading the research project “Supercapattery from Local Bovid Bone Waste for Electric Vehicles – Design, Fabrication, and Analysis.”• Directly involved in the design, fabrication, and experimental analysis of energy storage prototypes.	Sep 2024 – Present Kritipur, Nepal
InsideMaps <i>CAD Drafter/ Meditor</i> <ul style="list-style-type: none">• Create accurate 2D floor plans from 3D scans for residential properties, supporting virtual tours and real estate marketing.• Lead and mentor junior team members to maintain drafting standards and ensure timely deliveries.• Ensure high-quality drafting standards while meeting daily production goals.	Sep 2024 – Present Remote
Upwork-Freelancer <i>Mechanical Design and Simulation Engineer</i> Upwork Profile	Apr 2024 – Present Remote
GreenTech Nepal Pvt.Ltd <i>Research and Development Engineer Intern</i> <ul style="list-style-type: none">• Conducted a literature review on heat pump dryer systems for agricultural products and designed a custom system for drying oyster mushrooms, considering optimal temperature, humidity, and product attributes.• Selected components like heat exchangers, compressors, and evaporators based on performance, cost, and compatibility to create an efficient heat pump dryer tailored to the mushroom drying process. Learn more	Oct 2023 – Dec 2023 Lalitpur, Nepal

Projects

Design and fabrication of manufacturing machine for Bamboo panel production process. <i>Mechanical Design, Structural Analysis, Fabrication Technique</i>	Jun 2023 – Apr 2024
<ul style="list-style-type: none">• Developed and constructed a specialized manufacturing machine for bamboo panel production, featuring automated adhesive application, mat formation, and hydraulic pressing with integrated heating elements.• Conducted thorough strength testing to assess the structural integrity, durability, and versatility of the bamboo panels for diverse applications.	
Go-Kart (FireBall2.0) <i>Mechanical Design, Structural Analysis, Fabrication Techniques</i>	Jan 2024 – Feb 2024
<ul style="list-style-type: none">• Design, analysis and fabrication of a chassis to house a potent 150cc four-stroke bike engine, achieving top speeds of up to 85 km/hr.• Incorporated adjustable caster angle and chain adjustment features for precise handling customization enhancing overall performance on the racetrack.	

- E-Bike** | *Metal Fabrication, Electric Motor, Wiring Harness* Apr 2017 – Jun 2017
- Fabricated a robust chassis to ensure durability and safety, employing hands-on fabrication techniques.
 - Integrated a 48V 500W brushless hub motor and compatible controller, achieving smooth propulsion and enabling a top speed of 40 km/hr with a mileage of 40-60 km/hr.
- Three Wheeler Hybrid Car** | *Hybrid Electric Vehicle, Internal Combustion Engines* Oct 2018 – Feb 2019
- Developed a versatile three-wheeler hybrid car capable of operating in both petrol and electric modes.
 - Integrated a 125cc 4-stroke bike engine alongside a 750W BLDC motor, allowing users to choose between traditional combustion power and eco-friendly electric propulsion based on preference and driving conditions.
- SuffoSafe: Automatic Bathroom Smoke Evacuation System** | *Arduino* Mar 2022 – Mar 2022
- Led the fabrication of SuffoSafe, a safety solution prompted by a suffocation incident, swiftly removing excess smoke to ensure people's safety.
 - It aims to enhance bathroom safety by preventing suffocation accidents caused by poor ventilation, detecting and mitigating smoke buildup effectively.
- Go-Kart (FireBall)** | *Metal Fabrication, IC Engine* Oct 2022 – Jan 2023
- Constructed a high-performance go-kart tailored for racing purposes, equipped with a potent 180cc four-stroke bike engine.
 - Achieved impressive speeds of up to 75 km/hr, showcasing superior acceleration and handling characteristics on the racetrack.
- Go-Kart** | *Metal Fabrication, IC Engine* Nov 2019 – Jan 2020
- Constructed a go-kart for racing purposes, equipped with a 125cc four-stroke bike engine.
 - Achieved speeds of up to 40 km/hr.
- Design of Coldstore** | *Cooling Load Calculation, Refrigeration Equipment Selection* Feb 2024 – Mar 2024
- Designed a seed potato cold store with a focus on maintaining optimal storage conditions through calculations of cooling loads, accounting for insulation, ambient temperature, desired storage temperature and humidity.
 - The refrigerated equipment was chosen based on the estimated cooling load and storage requirements, with an emphasis on energy efficiency and efficient temperature control to preserve seed potatoes.
- Design of Firefighting System** | *System Design, Hydraulic Calculations, Technical Analysis* Feb 2024 – Mar 2024
- Designed a comprehensive firefighting system for the building, incorporating both fire sprinklers and fire hydrant standpipes strategically positioned for maximum coverage and efficiency in suppressing fires.
 - Conducted hydraulic calculations to optimize water distribution and pressure within the fire sprinkler and hydrant standpipe systems
- Air Conditioning: Cooling Load Calculation** | *Cooling Load Calculation* Jul 2023 – Aug 2023
- Conducted comprehensive calculations to assess the heating load of the building, considering factors such as insulation, ambient temperature, and desired room temperature.
 - Plan layout of split AC system in multistory building.

Project Portfolio: [Click here](#)

Honors and awards

- Go-Kart League Winner (MechTRIX 2080)** | *SOMAES, IOE Pulchowk* Feb 2024
- Led the winning team "FireBall 2.0" in the go-kart race organized by SOMAES during MechTRIX 2080.
 - FireBall 2.0 with 150cc four-stroke bike engine, achieving an impressive top speed of 85 km/hr and demonstrating superior performance on the racetrack.
- 3D Design Hackathon 2nd Runner Up (MechTRIX 2080)** | *SOMAES, IOE Pulchowk* Feb 2024
- Developed a fan-shaped automatic gate consisting of four sub-panels that operate using a counterclockwise mechanism, optimizing energy efficiency and reducing mechanical stress.
- Go-Kart League Winner (MechTRIX 2079)** | *SOMAES, IOE Pulchowk* Jan 2023
- Led the winning team "FireBall" in the go-kart race organized by SOMAES during MechTRIX 2079.
 - FireBall with 180cc four-stroke bike engine, achieving an impressive top speed of 75 km/hr and demonstrating superior performance on the racetrack.

- +2 B.E. Design Winner (MechTRIX X) | SOMAES, IOE Pulchowk** Jan 2019
- Presented a Three Wheeler Hybrid Car project with integrated Arduino and sensor technology, showcasing advanced functionalities.
 - Implemented comprehensive safety and security features including GPS tracking, alcohol detection, obstacle detection, and alert systems to enhance driver safety and reduce collision risks.
- +2 B.E. Design Winner (MechTRIX 8.0) | SOMAES, IOE Pulchowk** Feb 2018
- Presented an e-bike project featuring advanced functionalities integrated using Arduino and sensor technology.
 - Upgraded the electric bike with a smart helmet, GPS tracker, and alcohol detector for enhanced safety and usability.

Training and Certifications

- SOLIDWORKS Additive Manufacturing Associate | Dassault Systèmes** Jul 2024
- Credential ID C-E947BX2JAC
- SOLIDWORKS CAD Design Associate (CSWA) | Dassault Systèmes** Jul 2024
- Credential ID C-562NSDEWMR
- 7 Days Workshop on SolidWorks 2080 | SOMAES** Jan 2024
- Mentor in "7 Days Workshop on SolidWorks 2080" organized by Society of Mechanical and Aerospace Engineering Students (SOMAES).
- Hardware Fellowship Workshop | LOCUS** Dec 2019
- A 10 Day Arduino workshop and crash course in electronic hardware design.
- International Astronomical Search Collaboration | Pan-STARRS** Sep 2018
- Participated in the International Astronomical Search Collaboration, a prestigious program focused on the observation and analysis of near-Earth objects (NEOs) and main belt asteroids.

Technical Skills

Languages: English, Nepali

Data Analysis: Microsoft Office (Excel)

CAD and Simulation: Solidworks, AutoCAD, ANSYS

Workshop Tools: Lathe, Welding, Grinder, Driller

References

Dr. Deependra Parajuli, Associate professor

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Physics

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Dr. Shree Raj Shakya, Associate professor

Director, Center for Energy Studies, IOE, Nepal.
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Vishwa Prasanna Amatya, Associate professor

Heating, Ventilation, and Air Conditioning
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Declaration

I solemnly declare that the information provided in this CV is accurate and truthful to the best of my knowledge.

Bibek Shrestha