# ABHISHEK KUSHWAHA

**Industrial Designer | R&D | Medical Devices & Electromechanical Systems**
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## Professional Summary

Industrial Designer with 2+ years of hands-on R&D experience in medical and wearable product development, spanning portable diagnostics, neurostimulation devices, and IoT-integrated assistive systems. Trained at IDC School of Design, IIT Bombay, with a mechanical engineering foundation that enables deep integration across electromechanical systems, DFM, and usability engineering. Experienced in taking products from clinical problem framing through concept development, prototyping, validation, and production handoff. Comfortable operating in ambiguous, early-stage R&D environments with cross-functional teams.

## Experience

**Industrial Designer** – R&D & New Product Development — Feb 2026 – Present
**Mahindra University** | Hyderabad, India

- Designing wearable medical devices for real-time physiological monitoring and early-stage health condition detection.
- Contributing to system architecture, ergonomic development, and functional prototyping within development workflows aligned with ISO 13485 quality management and IEC 62366 usability engineering standards.
- Supporting risk management processes per ISO 14971, structured feasibility validation, and design documentation within a regulated medical device R&D environment.

**Industrial Designer** – R&D & New Product Development — July 2025 – Jan 2026
**T-Works** (India's Largest Prototyping & Product Realisation Facility) | Hyderabad, India

- **Flagship Project - TB-Dx: Portable Tuberculosis Diagnostic System**
  - Led end-to-end development of a portable electromechanical tuberculosis diagnostic device for frontline healthcare deployment, defining system architecture, operator interaction logic, and workflow automation, increasing diagnosis speed by 66.5% and reducing diagnostic error by 32%.
  - Conducted structured validation planning, performance testing, and risk identification aligned with ISO 14971 risk management and IEC 62366 usability engineering practices within a regulated medical device development context.
  - Supported design documentation and cross-functional coordination to advance the system from early R&D to pilot-stage validation, with development workflows referencing ISO 13485 quality management standards.
- **Additional R&D Projects**
  - Developed a non-invasive auricular vagus nerve stimulation device, contributing to electromechanical integration, ergonomic refinement, and performance validation, reducing device weight by 40% and extending therapy duration by 40 minutes.
  - Collaborated with startup teams to develop an AI-powered wearable communication glove, supporting subsystem integration, prototyping, and manufacturability assessment, reducing text-to-speech latency by 80% through AI-backed processing optimisation.
  - Delivered system-level architectures across multiple precision-driven products, applying DFM/DFA principles, material selection, structured user testing, and cross-functional collaboration to improve repeatability and production readiness.

**Industrial Designer** – R&D & New Product Development — Jan 2024 – June 2025
**Klioro** | Pune, India

- Contributed to establishing the company's R&D division, structuring development workflows and translating complex product requirements into actionable engineering briefs.
- Designed and engineered precision wearable mechanisms, including locking systems and hinges, applying DFM/DFA principles and iterative prototyping to reduce part count by 30-45% and manufacturing cost by 13%.
- Built proof-of-concept prototypes through structured research and iterative development, advancing 5 products from concept to scaled production.
- Collaborated with CAD, manufacturing, and engineering teams to ensure technical feasibility and seamless production transition; 3 selected products were showcased at the India International Jewellery Show (IIJS).

**Industrial Designer** – Design Intern — May 2023 – June 2023
**Alagangle Design Studio** | Nagpur, India

- Contributed to the competitive redesign of an industrial tower light for Navitas Lighting, working directly under the studio founder to improve functional performance and production feasibility.
- Engineered integrated multi-functional components, reducing part count, simplifying assembly complexity, and lowering overall manufacturing cost by 27%.
- Supported prototyping, testing, and design validation with engineering teams, finalising materials, mechanisms, and manufacturing strategy to deliver an initial production batch of 300 units.

**Academic R&D Project** – Assistive Communication System for Ataxia Patients Aug 2023 – Mar 2024
**IDC School of Design**, IIT Bombay

- Conducted primary research with neurologists and cerebellar ataxia patients to identify communication barriers during motor-coordination impairment, translating clinical insights into structured design requirements.
- Designed a wearable assistive device paired with a companion IoT mobile application (COMU), enabling real-time SOS signalling and caregiver communication through an ambidextrous, ergonomically validated wrist-worn form factor.
- Developed system architecture and iterative concept prototypes across two development phases, applying usability engineering principles aligned with IEC 62366 to validate interaction logic and refine product direction.

## Education

- **Master of Design (M.Des.), Industrial Design, IDC School of Design** Aug 2022 – June2024
  IIT Bombay | Mumbai, India

- **Bachelor of Engineering (B.E.), Mechanical Engineering, A.C.E.T.,** Aug 2015 – June2019
  Nagpur University | Nagpur, India

## Core Competencies

- **Technical Skills**
  Human-centered product development, electromechanical system design, mechanism design, DFM/DFA, prototyping & functional validation, ergonomics & usability engineering, mechanical-embedded integration, risk management per ISO 14971, usability engineering per IEC 62366, quality-aligned development per ISO 13485.

- **Software**
  Fusion 360, Rhinoceros, KeyShot, Adobe Creative Suite, Vizcom, Krita.

## Certifications & Languages

- **Certifications & Publications**
  NPTEL - Product Design and Innovation. 2018
  JETIR Publication - "Design and Modification of a DX Window AC into a Water Chiller". 2019

- **Languages**
  English (C1), French (A1 - in progress), Hindi (Native)