Muhammad Abdullah Khalid

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EDUCATION

National University of Science & Technology   Rawalpindi, Punjab
BE Mechatronics Engineering   Nov 2021 – Jun 2025
- Relevant Coursework: Mechatronics System Design, Microcontrollers and Embedded Systems, Digital Logic Design, Electronic Devices and Circuits, Electronics Circuit Design, Engineering Drawing, Solid Modeling, Materials and Manufacturing Processes, Design of Machine Element, Theory of Machines.

Government College University Lahore   Lahore, Punjab
F.sc (pre-engineering)   Sept 2019 - Jun 2021
Grades: 88%

Muslim Model High School   Sheikhupura, Punjab
Matric – Computer Science
Grades: 96%   Aug 2017 – Mar 2019

WORK EXPERIENCE

National Centre of Robotics and Automation   Rawalpindi, Punjab
Research Intern   Jul 2024 – Aug 2024
- Conducted various motion analyses of UAV landing gears in ANSYS using carbon fiber polymers to improve crashworthiness by 25%. Co-authored and submitted related research to the *International Journal of Aerospace Engineering*.

Touchstone Solutions   Lahore, Punjab
Mechanical Engineering Intern   Jul 2023 - Sep 2023
- Engineered 2 main projects including an angle adjustable solar panel stand and a small scale expandable 1.1kWatt solar grid.
- SolidWorks to design CAD model of solar stand with up to 3 angle adjustments to improve efficiency by 15%.
- Assessed the market for affordable components needed for solar plant installation and reduced the cost by 32% of the original cost and constructed prototype.

PROJECTS

Humanoid Assistive Robotic Platform (HARP):
- Engineered a social robot with omni-wheel base of 8 degree of freedom and integrated LLM for human-like communication and real-time emotion recognition.
- Integrated 2-DOF neck mechanism for expressive movements and visual emotion display for improved engagement.
- Executed passive SLAM for mapping, navigation, and integrated ROS 2 for modular architecture.

Small-scale Tree Plantation Robot from scratch:
- Remodeled a 4-wheel drive base using 2 motors, chains and gears, Dual direction control h-bridge for 24Volts DC motors, 3D printed mechanism for picking and placing of trees and rocks, programmed microcontroller for autonomous control. Competed in National Engineering Robotics Contest.
  For more projects visit portfolio website: https://muhammadabdullahkhalid.me/

RESEARCH PUBLICATION

International Journal of Aerospace Engineering
Title: "Design and Analysis of CFRP-based UCAV Landing Gear for Structural Performances".

VOLUNTEER

Robotics & Automation Club, NUST CEME   Rawalpindi, Punjab
Technical Head   Jun 2022 – Jun 2024
- Collaborated with a team of 5 designers to design a prosthetic arm using SolidWorks.
- Contributed to the development of a stereo camera and reduced fabrication time to 70% by manufacturing PCB inhouse.
- Mentored 20+ students in learning technical skills related to PCB design using Proteus and Altium Designer.

CERTIFICATIONS

Master PLC Programming – Allison Course   C++ Programming Language – Solo Learn
Fusion 360: Design for Mechatronics - LinkedIn Learning   2-Day UR-5 Collaborative Robot Workshop, NCRA

SKILLS

CAD – SolidWorks, AutoCAD, Fusion360 | PLC Programming – Ladder Logic | Programming language - C++, Python| PCB Designing –Proteus, Easy EDA | Microcontrollers – AVR, Esp32, 8051 | Linux | ROS2

ACHIEVEMENTS

- Secured the top spot at the EME Hackathon 2023 in Idea video category by fabricating a prototype for smart glasses using Arduino nano.
- Conceptualized and organized a gaming competition, managing a team of 5 members, attracted 50+ participants, contributing to a heightened sense of community engagement.
- Recognized as one of the top 10 high-impact contributors as Lead Media and Communications in Robot and Automation Club.