

## SYED BACHA HUSSAIN BUKHARI

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### Education

#### UNIVERSITY OF ENGINEERING AND TECHNOLOGY PESHAWAR(GPA 3.74)

Peshawar, KP

*M.Sc Mechatronics Engineering Major Automation & Control*

2022-2024

Thesis: AI-Based Glaucoma Detection Using Fundus Images

#### UNIVERSITY OF ENGINEERING AND TECHNOLOGY PESHAWAR(GPA 3.77)

Peshawar, KP

*B. Sc Mechatronics Engineering*

2018-2022

Thesis: Design and Fabrication of Inexpensive Portable Polar 3D Printer

### Professional Experience

#### Cherat Cement Company Limited

Nowshera, Pakistan

CCCL is the largest OPC manufacturer in the North of Pakistan with annual production of 4.5 million tons.

**Engineer III-Instrument & Control:** December 2023 – Present

**Trainee Engineer Instrument & Control:** December 2022 – November 2023

- **Maintenance:** Commissioning and installation, maintenance and calibration of various equipment installed at the plant.
- **Management:** Creating and following maintenance and calibration plans.
- **R & D:** Developing smart solutions for the recurring problems at the plant.
- **Interdepartmental Collaboration:** Collaborating with other departments for necessary maintenance activities

#### Projects

- *Automatic Sample Collection Project Using S7-1200 and KTP 700 Basic*
- *Autonomous Liquid Draining for Compressed Air Tanks Using S7-1200 PLC*

#### AI in Healthcare Lab, NCAI

Peshawar, Pakistan

AIH lab is one of the few labs under the umbrella of the National Center of Artificial Intelligence, NCAI aiming to solve problems using AI.

**Research Assistant Intern:** August 2022 – November 2022

- **Computer-Aided Design:** Designing and evaluating prototype designs using SOLIDWORKS and Rhino.
- **3D Printer Operating:** Operating the 3D printer for rapid prototyping and testing of products in the lab.

### CERTIFICATIONS

- [Certified SOLIDWORKS Associate-Mechanical Design \(CSWA\).](#)
- [Certified SOLIDWORKS Associate-Additive Manufacturing \(CSWA\).](#)

### Additional

- **Technical Skills:** TIA Portal, Plant Instruments, PLC, SAP, Solidworks, Python, P & ID, MATLAB, AutoCAD Electrical, Proteus, C++, Multisim, COMSOL, Simulink, Arduino IDE, Word, Excel, Powerpoint, SAP.
- **Interests:** Robotics, Technology, Automation, AI, Book reading, Skating and Podcasts.
- **Language:** English, Urdu, Pushto.

### Academic Experience and Projects

#### PLC to PLC Communication

Peshawar, Pakistan

Advanced industrial automation course project in master. The task was to connect two s7-1200 PLCs so that both could communicate with each other.

**Group Leader:** October 202

- **Ladder Logic PLC Programming:** Developed the ladder logic for the above-mentioned task.

### PLC to PC/ Server Communication

Peshawar, Pakistan

Advanced industrial automation course project in master. The task was to connect PLC and PC using a virtual server so that PLC and PC could send and receive instructions

Group Leader: October 2023

- *Ladder Logic PLC Programming*: Developed the ladder logic for the above-mentioned task.

### DESIGN AND FABRICATION OF POLAR 3D PRINTER

Peshawar, Pakistan

In the final year project, we as a team designed and developed a portable, inexpensive Polar 3D printer. The demonstration and working video can be found [here](#).

Group Leader: October 2021 – June 2022

- *Mechanical Design*: Developed the whole model of the polar 3D printer in SolidWorks for checking and simulating the working and printing of certain parts.
- *Arduino Coding*: The 3D printer was controlled using the Arduino Mega microcontroller.
- *Circuitry*: Developed the circuitry for the project in simulation software like Proteus and Multisim and fabricated the actual circuitry.
- *Project Management*: Managed a group of three members assigned tasks and achieved the project deadline on time with good results.

### PLC PROJECT

Peshawar, Pakistan

A lab project of Industrial Automation to switch five AC loads in various combinations depending on the five inputs using Siemens S7-1200 PLC.

Group Leader: January 2022 – February 2022

- *Ladder Logic*: Developed the ladder logic for the whole process narrative.
- *HMI Development*: Developed user-friendly HMI for switching AC loads and indicating the state of each load.
- *Circuitry*: Developed the input and output circuitry for the project using AC loads and contactors for connecting power to load.

### BALL POTTING ROBOT

Peshawar, Pakistan

A robot that intelligently tracks a black line and avoids obstacles in the way to put the ball into the intended basket.

Group Leader: April 2021 – May 2021

- *CAD Design*: Designed the mechanical model of the robot in Solidworks.
- *Circuit Design*: Designed a complete circuit for the robot including a microcontroller and 3 infrared sensors, 2 ultrasonic sensors, 2 DC motors, and 1 servo motor.
- *Programming Atmega328p*: Programmed the Atmega32p microcontroller in Arduino IDE to control the robot.

### EDGE AVOIDING ROBOT

Peshawar, Pakistan

A three-wheel robotic car will avoid falling from high surfaces by sensing the edge and changing direction.

Group Leader: November 2019 – January 2021

- *Digital Logic Design*: Designed the whole algorithm of the robot using AND, OR, and NOT logic gates without any microcontroller.

### Publication

[Design and Fabrication of Inexpensive Portable Polar 3D Printer](#)

2023

IEEE Xplore

[Enhanced Glaucoma Diagnosis Through U-Net Deep Learning and DenseNet-201 Feature Extraction](#)

2024

Journal of Xi'an Shiyu University, Natural Science Edition

### ONLINE COURSES

California, USA

- Programming for Everybody By the University of Michigan(Coursera).
- Python Basics by the University of Michigan (Coursera).
- Python Functions, Files, and Dictionaries by the University of Michigan(Coursera).
- Foundations: Data, Data, Everywhere by Google (Coursera)

- Ask Questions to Make Data-Driven Decisions by Google (Coursera).
- Introduction to Programming with MATLAB by Vanderbilt University
- AI for Everyone by DeepLearning.AI (Coursera)

#### Honour and Awards

##### **BEST FINAL YEAR PROJECT AWARD**

Peshawar, Pakistan

Received the Best Final Year Project Award for the project titled "Design and Fabrication of Polar 3D Printer"

##### **2nd HIGHEST GPA**

Peshawar, Pakistan

Secured 2nd highest GPA of 3.77/4 in the graduating batch of 2022 of Mechatronics Engineering.

#### Extracurricular & Volunteer Experience

##### **YOUTH ROBOTEC 22**

Peshawar, Pakistan

- *Event Management and Leadership*: Successfully planned, managed, and executed one of the biggest Robotic competition events in KP in which 350 teams participated from all over Pakistan

##### **AMAL AMBASSADOR**

Peshawar, Pakistan

- *Ambassadorship*: Communicated the message of AMAL Academy to recent graduates and final year students by creating innovative and creative content for social media and crafting inspirational narratives contributing towards bringing 4300+ applications.

##### **ROTARACT CLUB**

Peshawar, Pakistan

- *Event Management*: Assisted and arranged the "End Polio Now" seminar as a general member of the team of the ROTARACT Club UET Peshawar at the Mechatronics department.

##### **CULTURAL EVENT**

Peshawar, Pakistan

- *Stall Manager*: Managed a stall representing the culture of 'Malakand' with a group of 5 members and won the best stall award with a cash prize of 25000 PKR.

##### **ROBO FIESTA 3**

Taxila, Pakistan

- *Team Leader*: Participated as a team leader in a 2-day robotic competition at HITEC University Taxila.