

# Ahmed Ibrahim

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## Mechatronics Engineer | Solar PV & Industrial Automation

Mechatronics Engineer with hands on experience in Siemens PLC programming, industrial automation, motor control systems and renewable energy projects. Skilled in designing, simulating and testing control systems, integrating sensors and actuators, troubleshooting electrical faults and supporting installation and commissioning activities. Strong foundation in industrial safety logic, motor protection systems and automation troubleshooting. Seeking site-based roles in maintenance, PLC systems and solar installations within industrial environments.

## Technical Skills

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- Siemens S7 1200 PLC programming using TIA Portal V15.1
- Ladder Logic development and PLCSIM testing
- Industrial motor control circuits including forward reverse and protection systems
- Electrical interlocks, emergency stop systems and fail-safe logic
- Sensor integration for conveyor and automated systems
- Basic VFD configuration and motor protection principles
- Electrical wiring, panel testing and schematic interpretation
- Arduino and ATmega328 programming using C and C++
- Solar PV fundamentals, solar tracker systems and battery inverter sizing
- SolidWorks 3D modeling and mechanical assembly design
- MATLAB Simulink for control system simulation
- ABB Robot Studio simulation for robotic motion and pick and place systems

## Projects

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### Renewable & Energy Systems Projects

#### Solar-Powered Stirling Engine

Oct 2024 – May 2025

Eastern Mediterranean University, Cyprus

- Designed 3D mechanical components and assemblies using SolidWorks
- Supported development of thermal to mechanical energy conversion system
- Assisted in assembly and integration of solar powered prototype system
- Coordinated with team during prototype validation and performance testing

#### Vertical Axis Wind Turbine

Jan 2024 – June 2024

Eastern Mediterranean University, Cyprus

- Designed complete windmill system including blades, shaft and pulley assembly using SolidWorks
- Conducted aerodynamic analysis to improve performance efficiency
- Supervised manufacturing and assembly processes ensuring quality compliance
- Ensured components met required specifications and performance targets

### Siemens PLC Automation Projects (TIA Portal & PLCSIM)

- Designed and simulated industrial motor control systems using Ladder Logic (LAD)
- Implemented forward/reverse control with electrical and software interlocks
- Designed and simulated a sensor-based conveyor automation system reducing cycle time by 25% in simulation environment
- Programmed traffic light control using timers and sequential logic
- Applied emergency stop systems and fail-safe fault handling

**Tools:** Siemens S7-1200, TIA Portal V15.1, PLCSIM

## Robotics & Mechatronics Projects

### ABB IRB 120 Robotic Arm (6 DOF) Simulation Project

Feb 2025 – July 2025

Eastern Mediterranean University, Cyprus

- Simulated 6-DOF robotic arm motion, kinematics, and path planning using ABB RobotStudio
- Developed pick-and-place and trajectory control simulations

### Autonomous Sumo Robot

Feb 2025 – June 2025

Eastern Mediterranean University, Cyprus

- Built a competitive sumo robot for arena-based battles.
- Programmed sensor-based object detection and escape behavior using Arduino and C++.
- Conducted iterative testing and performance tuning for optimal pushing power, stability, and responsiveness.

## Education

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### BSc in Mechatronic Engineering

Eastern Mediterranean University, Cyprus

*Relevant Modules: Digital Control Systems (PID) , Robotics (Kinematics) , Microcontrollers.*

## Internship Experience

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### Automobile Maintenance Intern

Oct 2025 – Jan 2026

- Assisted in vehicle diagnostics and preventive maintenance procedures
- Supported mechanical and basic electrical repair operations under senior technicians
- Applied workshop safety standards and gained hands on experience with diagnostic tool

## Extracurricular Activities

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### Head of Organizers | Sudanese Society Union (SSUEMU)

Fall 2025

Eastern Mediterranean University, Cyprus

- Led a team organize large cultural and academic events
- Managed logistics, team coordination, and budgeting

### TEKNOFEST Competitor | Solar Tracking System

Spring 2025

- Collaborated with team of 6 to create a sun tracking solar energy system by using a different approach Solar Stirling Engine
- Programmed Arduino and the stepper motor to tack the sun and locate it's position and display on the LCD screen

### Mechanical Engineering Club

Fall 2023

- Led team of four to design and prototype workshop fixture for competition
- Managed inventory and procurement of materials within budget
- Organized practical workshops in welding, advanced SolidWorks modeling and rapid prototyping

## Languages

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Arabic (Native)

English (Fluent)

Turkish (Intermediate)