SAMEER KHAN

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EDUCATION

University of California, Berkeley - *B.S. Mechanical Engineering*
Relevant Coursework: Engineering Project Management, Advanced Engineering Design Graphics, Dynamic Systems and Feedback, Internet of Things (IoT), Control of Unmanned Aerial Vehicles, Mechatronics Design, Prototypes, Troubleshooting

SKILLS

CAD : OnShape, AutoCAD, SolidWorks, Creo, REVIT, ANSYS, NX | 3D Modeling, Assemblies, Simulations, Sheet Metal Design
Programming : Python, C++, Java, MATLAB, Linux, MicroPython| Embedded Systems, Automation, Algorithm Development
Engineering : GD&T, Control Systems, FEA, CFD, HVAC, Product Design, Simulation, Modeling, Rapid Prototyping
Software : MS Office, LabVIEW, Simulink, Arduino IDE, SolidWorks Simulation

EXPERIENCE

University of California, Undergraduate Research Apprentice Program (URAP) , Berkeley, CA
Design Engineer Intern Jan 2023 – Dec 2024

- Led design and optimization of a peritoneal dialysis machine, reducing material costs by 60% and improving energy efficiency by 54% through component redesign and alternative hardware components.
- Developed a pinch-actuation system with a linear actuator and user-friendly GUI, reducing user input complexity and improving operational ease, improving system performance by 30%.
- Created detailed 2D drawings with GD&T standards, improving manufacturability and reducing revisions.
- Built and tested functional prototypes, incorporating mechanical and software improvements based on real-world use cases.
- Participated in root-cause analysis of system-level failures and implemented corrective actions to improve device robustness.
- Contributed to cross-functional team discussions on design for manufacturability (DFM), ensuring a smoother transition from prototype to production.
- Presented progress in weekly engineering design reviews, receiving constructive feedback from senior engineers and refining design direction accordingly.
- Achieved a $50 cost reduction per unit by sourcing cost-effective microcontroller and actuator alternatives

PROJECTS

Robotic Writing Arm June 2023 – Dec 2023

- Built a robotic arm capable of automated writing and sketching, achieving 95% accuracy in image replication
- Programmed the robot using Arduino IDE and C++, implementing custom motion algorithms to interpret and execute user input in real time, resulting in precise pen control across three axes.
- Refined the firmware with efficient switch-case logic, optimizing performance and reducing system lag, which led to a 25% reduction in debugging time and improved responsiveness
- Successfully demonstrated the robot's ability to replicate complex images, with a 20% improvement in drawing speed over initial prototypes.

Automatic Plant Watering System Aug 2022 – Dec 2022

- Built a smart irrigation system using ESP32, MicroPython, and a capacitive moisture sensor to maintain optimal soil hydration at the desired moisture level.
- Designed and assembled a submersible miniature water pump that responded to sensor feedback for automated moisture regulation.
- Developed a wireless Python-based GUI to visualize moisture levels in real time, enabling user-friendly remote monitoring.
- Configured the system for continuous wireless access, allowing users to monitor soil conditions remotely from any location and at any time.