Criss Azer Habashi

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Education

University of California, Irvine   **Expected June 2025**
M.Eng., Mechanical and Aerospace Engineering
BS Mechanical Engineering

Experience

Student Researcher, Saratech – Mission Viejo, CA – 24 Hours/Week – $0.00   **Oct 2023 – Apr 2024**
- Designed a Smart Lock Kit using SolidWorks, featuring a redesigned strike plate that integrates all electronics and notifies users of lock status via an app, ensuring compatibility with standard non-smart deadbolt locks
- Applied Design for Manufacturing principles to adapt the Home Lock Management System to use off-the-shelf parts to set a competitive retail price at $25.00, below the usual smart lock prices starting at $50.00
- Developed a Flutter-based Home Lock Management System app, enhancing security with real-time door lock notifications and UI through IoT integration
- Identified material inconsistencies, switched from steel to aluminum, reducing mold costs by 30% and production time by 25%
- Drafted an application for filing a patent for a Home Lock Management System, outlining unique features and functionalities for non-smart deadbolt locks

Projects

UCI Anteater SAE Formula Racing – 24 Hours/Week – $0.00   **Jan 2023 – Apr 2023**
- Developed and utilized a custom-built MATLAB racing simulator to create theoretical vehicular models, including lap times, aerodynamics, engine torque curve, drivetrain, and aerodynamics, enabling future adjustments and testing
- Conducted and organized data acquisition of vehicle and race track during track days using MATLAB, Excel, and Go-Pro Telemetry Software, facilitating streamlined data analysis and informing future improvements
- Led a team of 5 in designing a Drag Reduction System (DRS) using SolidWorks, Ansys Fluent, and Arduino, creating a control system to optimize airfoils of the rear wing to ideal angles of attack and achieve a maximum of 50% drag and downforce reduction on track straights and corners
- Manufactured a 40% small-scale prototype of the rear wing utilizing a Bambu Lab P1S 3D Printer, enabling testing and validation of the pneumatic actuation system and drag reduction capabilities

Minimally Actuated Walker – Irvine, CA – 20 Hours/Week – $0.00   **Jan 2024 – Apr 2024**
- Redesigned a two-legged stepper motor-driven walking robot into an eight-legged DC motor-powered mechanism, achieving 95% course navigation accuracy
- Conducted MATLAB simulations to optimize robot speed and steering precision by analyzing battery efficiency and motor speed, resulting in a battery life extension of twenty minutes and increased travel distance of ten meters
- Employed a SolidWorks motion analysis on different terrains; found that TPU feet covers absorbed ground impact effectively, enhanced the robot's competition speed by 20% and extended its range by 10%

Rechargeable Autonomous Robot – Irvine, CA – 22 Hours/Week – $0.00   **Oct 2023 – Dec 2024**
- Designed and developed a rechargeable autonomous robot with SolidWorks, completing preplanned motions with less than 5% error
- Conducted stress and strain analysis on a wooden chassis using ANSYS, pinpointed stress concentrations and uneven load zones, achieving an 18% load reduction by redistributing parts for even weight distribution
- Programmed obstacle detection and path correction with MicroPython in Visual Studio using proportional derivative control, achieving a 20% improvement in system response time
- Designed and implemented a photovoltaic system with high-efficiency solar cells, extending the robot's battery life by four hours from indoor lighting

Skills

CAD: SolidWorks
Analysis: FMEA, ANSYS, SolidWorks Simulation, MATLAB