Qusai Alabbadi

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Reliable Mechanical Engineer with excellent problem-solving skills and great knowledge in Mechanical Engineering approaches, principles and CAD software's. Experienced in UAV design and manufacturing, drone technology.

Education

1-AL-Hussein Technical University Amman | 2021- 2026

Bachelor of Science Mechanical Engineering

Skills

Hard skills

- Robotics
- Mechanical design
- CAD (SolidWorks, Inventor)
- FEA (Static Structure, CFD)
- MATLAB
- UAV design
- UAV piloting
- Laser cutting
- 3D printing (FDM)

Soft skills

- Commitment
- Teamwork
- Presentation
- Communication
- Project management
- Problem solving
- Leadership

Languages

- Arabic: Mother language
- English: B2
- Python / C

Projects

- 3D printed aircraft:
  Designed a glider aircraft for a 3D printing aircraft competition at the University of Texas at Arlington (UTA), securing second place in both design and longest flight time categories. The project involved optimizing aerodynamic performance and structural integrity using advanced CAD and simulation tools. Key innovations included a V-shaped joint system for enhanced assembly and a lightweight structure achieved through advanced 3D printing techniques. The final design featured a high aspect ratio wing and a V-tail configuration, tailored to maximize glide time and meet specific competition requirements.

  Autonomous quadcopter:
  Successfully completed an autonomous mission using an S500 Drone equipped with Pixhawk 4 and Ardupilot firmware. Leveraged the capabilities of Pixhawk 4 and Ardupilot to achieve precise and efficient autonomous flight, including a full takeoff and landing, demonstrating the potential of drone technology in various applications. This project highlights the advanced integration of hardware and software for autonomous operations, paving the way for further innovations in the field.

  Autonomous car robot:

I developed a car robot starting with the implementation of an IMU, utilizing rotation matrices and Euler angles to calculate pitch and roll angles. I applied a complementary filter to achieve high accuracy in these measurements and used gyro data to determine the yaw angle. I then implemented PID control to manage the robot's yaw angle. To enhance positioning, I integrated a GPS module, and for more precise positioning, I employed a Kalman filter to fuse accelerometer and GPS data. The project is still in development, with the next stage focused on mapping and integrating ROS for advanced functionality.

Experience

HTU Hackerspace | digital center — Amman | 01/05/2023 – 01/11/2023

- Operated and maintained 3D printers and laser cutters, ensuring smooth functionality in a dynamic digital center environment.
- Provided guidance and technical support to students, development successful project outcomes and enhancing their learning experience.
- Collaborated with colleagues on diverse projects, showcasing effective teamwork, communication, and project management skills to achieve objectives efficiently.

HTU AeroSquad — Amman | From 01/06/2022

- Led the technical team at HTU AeroSquad, overseeing workshops and multirotors, Fixed wing projects.
- Conducted workshops on Fixed Wing and FPV Quadcopter design, construction, and flight, imparting practical skills and knowledge to participants for university and school student
- The organization of the first FPV racing event in Jordan (MACH1).
- Working on Computer Vision (Face detection and facial expression recognition).

Competition Organization

- National Sumo Robots Competition: Led the technical inspection of all competing robots, ensuring they met safety standards and were compliant with competition rules. Managed logistics to facilitate smooth operations, including event setup, scheduling, and coordination.

- FPV Racing competition (MACH1): Spearheaded the organization of Jordan's first FPV racing competition, promoting innovation and advancing drone technology in the region. Provided hands-on training to contestants, teaching them how to build, maintain, and fly quadcopters.

Interest

- Passionate about exploring pioneering technologies in aerospace engineering and unmanned aerial vehicles (UAVs).
- Enthusiastic about sharing knowledge and expertise through educational workshops and initiatives.
- Interested in mechanical design and robotics, with a focus on leveraging technology to create innovative solutions.