Sparsh Shah

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Education

University of Waterloo **Sep. 2025 – Jun 2030**
Bachelor of Applied Science in Systems Design Engineering *Waterloo, On*

Relevant Coursework

- Data Structures
- Algorithms Analysis
- Internet Technology
- Computer Architecture
- Software Methodology
- Database Management
- Systems Design

Projects

Vaultify – Music Import & Streaming Platform | *Express.js, React.js, MongoDB, AWS*

- Developed a Spotify-integrated app that imports playlists, converts tracks to MP3 via YouTube, and streams them from AWS S3 using a custom React player, built as a personal solution since I already had a Spotify playlist but can't afford Premium and want an add-free experience.
- Backend architecture powered by Node, MongoDB, AWS S3 aswell as Youtube & Spotify Api.
- Implemented YouTube audio extraction and seamless upload to AWS S3 using streaming to optimize resource usage and scalability.
- Developed REST APIs with Express and stored unique song id's in MongoDB to track uploaded MP3s in AWS S3, improving playlist import efficiency by avoiding duplicate downloads.
- Shared the app with over 20 friends who also couldn't afford Spotify Premium, streamlining their music listening experience without ads and reducing their need for paid subscriptions.

Global Task Manager | *Express.js, React.js, MongoDB, Socket.IO*

- Created a globally accessible, shared task list where users can add, remove, and mark tasks as complete.
- Leveraged Socket.IO to broadcast real-time changes to all users, ensuring a seamless collaborative experience.
- Built a clean, responsive UI for usability across devices.
- Implemented basic user authentication with signup and login pages, securely storing encrypted passwords in MongoDB to control access.

Autonomous Robotics System | *C++, PROS*

- Programmed a competition robot using Purdue Robotics Operating System (C++) for the VEX Robotics game challenge.
- Implemented a PID control system to stabilize and automate arm movements with high precision..
- Utilized odometry and PID-based navigation to execute complex autonomous routines, contributing to a provincial record for most autonomous win points.
- Developed a PID tuning algorithm using binary search, streamlining the tuning process and sharing it with teammates to improve team-wide development efficiency.

Technical Skills

Languages: HTML/CSS, JavaScript, C++
Developer Tools: VS Code, AWS S3, MongoDB atlas, git/github, postman
Technologies/Frameworks: React.js, Node.js, Express.js

Volunteer / Extracurricular

Web Development Assistant **Jan 2024 – Jun 2025**
Developer Student *FortMcMurray Sanatan Mandir*

- Assisted in maintaining and updating the mandir's website to improve user accessibility and keep content current.
- Supported development tasks including layout design, content integration, and bug fixes using HTML, CSS, and JavaScript.
- Collaborated with senior developers and temple leadership to ensure the site met community needs and reflected cultural values.