Hariharan Arul

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Education

Amrita Vishwa Vidyapeetham — **September 2021 - Present**
Bachelor of Technology, Computer Science and Engineering | CGPA : 8.71 — Coimbatore, India

Bharathi Vidhyalaya CBSE School — **June 2019 - May 2021**
Higher Secondary | AISSCE | Percentage: 93.6 — Erode, India

Projects

SmartAlarm | RestAPI, MySQL, OAuth2.0, HTIG Stack, ESP32, Next.js, AWS SageMaker | Github Link

- ➔ Used ESP32 microcontroller to interface with various sensors for sleep tracking and weight monitoring.
- ➔ Implemented a publish-subscribe setup for comprehensive data storage, visualizations and sleep analysis done through an AWS instance in a team of two people.
- ➔ Utilized Wi-Fi and HTTPS/WebSocket protocols for seamless communication with cloud services.

EggChain | MetaMask, Ethereum-chain, React, Next.js, Hardhat, Solidity, Web3, Ether.js | Github Link

- ➔ Tracked every stage of the egg supply chain with immutable, tamper-proof records on the blockchain.
- ➔ Users interact with the dApp via MetaMask for secure and seamless access to the Ethereum network.
- ➔ Provided real-time updates on egg shipments using Web3.js and Ether.js.
- ➔ Used Hardhat and Solidity for automated, enforceable supply chain agreements, in a team size of two people.

Amrita Navigator | JS, HTML, AutoCAD, CSS, DSA(Graphs - A-star) | Github Link

- ➔ Given a starting point and destination the web based application gives the shortest path between the two.
- ➔ Offered real-time navigation and route guidance. Users can access turn-by-turn directions, helping them navigate unfamiliar places effortlessly, thanks to the dynamic toolbar. | Website Link
- ➔ Integrated facilities to track current status and progress of user using next and previous options by incorporating effective usage of compass facilities and Fabric.js.
- ➔ Added brief description of “On Your Way” places in a most interactive and user-friendly way, in a team of two.

Real-time Raspberry pi | Linux, Bash, C | Github Link

- ➔ Built a real time kernel for Debian based Linux v6.1.59 inside Raspbian OS of a raspberry pi-5.
- ➔ Patched the Linux Kernel with PREEMPT-RT patch v6.1.57 to convert it from soft real time to hard real time.
- ➔ Performed a cyclic test from the rt-tests package assessing metrics like latency and jitter, plotted the same using GNU plots for varying number of threads in a 4 core RT-kernel Vs a conventional non-RT kernel, with 16 cores.
- ➔ Observed a reduction in latency in the order of 1600 times for running workload of 10 lakh threads, in a group of 3.

[Research] EVOLVE-Onclick - Evolutionary Algorithms(EAs) & Software Design | Full-Stack | (Ongoing)

- ➔ Leveraged python’s DEAP package to simulate several EAs remotely through our sophisticated framework, reducing computational effort on local machines while also allowing customization of parameters.
- ➔ Simplified the usage and model building by eliminating the need for complex coding, in a team of four.

Technical Skills

Areas of Interest: Real Time Systems, Internet Of Things.

Languages and Frameworks: C C++ Python Java SQL Bootstrap Embedded-C Haskell MIPS-& ARM-assembly Kotlin React Linux Scala AntLR GoLang TIGStack Solidity Nextjs Bash HTML JS.

Tools and Technologies: Git WSL Figma Eclipse Visual-Studio Arduino Jupyter WireShark Keil-vision QTspim AutoCAD STM32Cube Android-Studio Jira Jenkins Streamlit.

Certification / Extra-curricular

- ➔ **Anokha 2023 Algorithm and Coding Quiz: Rank #3**
- ➔ **AI certification | Infosys | View Certificate**
- ➔ **Certified Kotlin developer | Coursera**
- ➔ **Mastering RTOS | Udemy**