

Deni Hamdani

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SUMMARY

Backend/Full-Stack Engineer with 12 years of experience in designing and developing enterprise web applications, including SIMRS, accounting systems, and external device integrations. Possesses a strong foundation in the PHP ecosystem (Yii/Yii2) and is currently actively developing modern real-time applications using Node.js, React, and WebRTC. Expert in designing REST APIs, optimizing database architectures, and modernizing legacy systems. Proven ability to lead end-to-end maintenance in production environments and successfully improve the performance of critical systems by up to 90%.

SKILLS

Programming Languages	: PHP JavaScript Typescript C# HTML CSS SQL
Backend & Framework	: Yii Yii2 Node.js (Express) .NET Framework (Desktop) Mediasoup (WebRTC)
Frontend & UI	: Bootstrap UI development Web Forms and Dashboards React.js
Databases	: PostgreSQL MySQL MariaDB
API & System Integration	: REST API Payment Gateway Third-Party System Integration Token-based Authentication Middleware External Device Integration
Systems & Real-time	: WebRTC Socket.io SMS Gateway (GAMMU) SMS Broadcast
DevOps & Tools	: Git Docker Linux (SSH Bash Cronjob)
Engineering Practices	: Database query optimization Indexing Caching Performance profiling System Troubleshooting Production Debugging Legacy System Modernization

HIGHLIGHT PROJECTS

SOUPCAN – Real-time WebRTC Video Conferencing Application

Backend / Fullstack Engineer | <https://soupcan.denihamdani.com>

Node.js, Express, Socket.io, Mediasoup (SFU), PostgreSQL, React, Vite, cPanel **Jun 2026 – Ongoing**

- Designed and developed a WebRTC-based video conferencing application for small teams (up to 5 people per room) with high resource efficiency.
- Implemented a Selective Forwarding Unit (SFU) architecture using MediaSoup to achieve low-level control over media routing, which is significantly lighter than peer-to-peer connections.
- Built a custom signaling system using Socket.io and integrated it with a REST API (Express) for user authentication and room management, with data stored in PostgreSQL.
- Developed an interactive frontend interface using React and Vite, featuring real-time synchronization capabilities such as screen sharing, spotlight user, grid view, mute/unmute, kick user, and chat.
- Overcame the limitations of the shared hosting environment (lack of Docker access and outdated C++/glibc libraries) by precompiling the Mediasoup worker locally within an Almalinux 8 Docker container, then transferring the module to the hosting server via SCP, where it was extracted to the destination directory.
- Optimizing server CPU performance by setting a maximum limit of 300 consumers per core (SFU) to ensure application stability in the hosting environment.

Senior Backend Engineer | PT Inovamedika Solusindo

Mar 2019 - May 2026

- In charge of the development and maintenance of a multi-branch Hospital Information System (SIMRS), including integration of medical devices, payment gateway, WebRTC telemedicine, and external system middleware. Led system modernization from PHP 5.6 to PHP 8.0 and backend/database performance optimization initiatives. **Impact:** improved system performance by 20%–90% across critical modules while maintaining high stability in production hospital environments.
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AWARDS

COVID-19 Volunteer Recognition | Minister of Health, Republic of Indonesia

Oct 2020

- Contributed to the development and implementation of a Hospital Information System (SIMRS) supporting the COVID-19 response at the KOGABWILHAN II Field Hospital in Surabaya.
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EXPERIENCE

Senior Backend Engineer | PT Inovamedika Solusindo

Mar 2019 - May 2026

- Developed integration of various external devices into the SIMRS system, including face recognition scanners, fingerprint devices, document/KTP scanners, and C#-based desktop attendance systems, with real-time data synchronization to the database to support hospital operations.
- Implemented a WebRTC-based telemedicine video call system using OpenVidu and Yii2, including HTTPS configuration (Let's Encrypt), server deployment, and technical documentation to support remote doctor-patient consultations during the pandemic.
- Built Java-based middleware and REST API bridging to integrate SIMRS with external systems such as queue number devices (12 units over LAN), LAB/RAD systems, and third-party applications, including inter-system communication via API and Telnet through a mini-PC infrastructure.
- Developed a voice-to-text feature using the Web Speech API (Chrome) to automatically capture patients' preliminary complaints, reducing manual data entry during medical consultations.
- Implemented an interactive mapping solution using the OpenStreetMap API to visualize the distance between hospitals and patient locations for pharmacy services, and extended the integration to ambulance dispatch operations by calculating travel distance and transportation cost estimates based on mileage.
- Improved SIMRS application and database performance through bottleneck analysis using browser profiling, PostgreSQL EXPLAIN, and query tuning via indexing, views, and caching, resulting in a 20%–60% performance improvement in reporting and transactional modules.
- Resolved data race issues in cashier transactions by designing a unique transaction number mechanism, temporary key generation, and retry/fallback logic to ensure data consistency under multi-user concurrent access.
- Optimized large-scale reporting and batch processing workflows, including BPJS claim simplification and transaction printouts, using pagination, parallel processing (cURL batching), and file compression (Ghostscript), achieving up to ~90% performance improvement in high-load scenarios.
- Modernized legacy SIMRS systems from PHP 5.6/Yii1 to PHP 8.0, including framework upgrades, compatibility analysis using PHPStan, and refactoring of 20+ modules to improve system stability, maintainability, and compatibility.
- Engineered and enhanced a C#-based attendance desktop application for multi-device integration, including query optimization, code refactoring, singleton configuration implementation, and batch data loading improvements.
- Applied API-based payment gateway integration for clinic systems, including payment method mapping, callback handling, transaction validation, and anti-duplicate payment mechanisms using transaction ID storage to ensure data security and consistency.
- Performed maintenance and troubleshooting of SIMRS systems in on-site hospital environments, including server access (SSH/database), PHP configuration tuning, and critical issue debugging during go-live phases to ensure operational stability.
- Coordinated with DevOps teams, analysts, and hardware vendors during system implementation and monitoring, including pre-deployment device validation, LAN/telnet troubleshooting, and configuration adjustments based on hospital operational needs.

Backend Engineer | PT Piranti Inovasi Indonesia

Sep 2013 - Feb 2019

- Constructed and modified SIMRS accounting systems, including automated journal posting processes, integration of operational transactions (cashier, pharmacy, medical actions), and financial reporting using database systems to ensure proper accounting workflows aligned with business requirements.
- Established UI modernization of the Management Information System using Bootstrap, including redesign of 20+ modules and multiple menus (forms, tables, inputs, reports), with parallel bug fixing and system improvements to enhance usability.
- Delivered a multi-SIM SMS Gateway system using GAMMU, including parallel sending, failover routing, and auto-restart mechanisms to ensure reliable SMS delivery despite device failures.
- Implemented a multi-branch SIMRS architecture using a multiple-profile approach, including separation of master data, branch-based transaction validation, and workflow adjustments for multi-clinic operations.
- Configured SMS notification systems for clinic operations (200–300 SMS/day per branch, total <1000 SMS/day), including patient reminders and service communication, with improved reliability through modem failover mechanisms.

- Created accounting modules using database functions and triggers, in collaboration with system analysts to define automated journal logic from SIMRS transactions, ensuring financial data consistency across modules.
 - Executed REST API and token-based authentication for SSO-like integration, enabling access to SIMRS from 11+ external applications without re-login.
 - Conducted SIMRS maintenance and troubleshooting in on-site hospital environments, including server access (SSH/database), PHP configuration tuning, and critical production issue resolution during go-live.
 - Handled production bug fixing and system optimization, including resolution of large-scale form input errors (200+ transaction rows), and coordinated configuration deployments with DevOps and analysts to ensure safe production updates.
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EDUCATION

Universitas Komputer Indonesia

Jul 2009 - Aug 2013

Faculty of Engineering and Computer Science

- **GPA:** 3.58/4.00
- Internship at Bandung City Communication and Informatics Office (2012), developing a web-based document dispatch system
- **Thesis:** Web-Based E-Learning Information System for SMA Negeri 4 Bandung