



# Mar Athanasius College of Engineering, Kothamangalam

## Department of Computer Applications

### Main Project 2023-25 Batch

#### Abstract

#### Title: Organ Bank: A Smart Organ Donation Management System

#### References:

1. Hawashin, D., Jayaraman, R., Salah, K., Yaqoob, I., Simsekler, M. C. E., & Ellahham, S. "Blockchain-Based Management for Organ Donation and Transplantation," *IEEE Access*, vol. 10, pp. 59013-59024, 2022. DOI: 10.1109/ACCESS.2022.3180008.
2. Dajim, L. A., Al-Zuraib, A. A., Al-Farras, S. A., & Al-Shahrani, B. S. "Organ Donation Decentralized Application Using Blockchain Technology," *2019 IEEE Conference*, 2019.
3. Behera, S. K., Sethy, P. K., & others. "MongoDB Integration with Python and Node.js, Express.js," *2024 International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT)*, 2024. DOI: 10.1109/ICAECT60202.2024.10460546.

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The Organ Bank is an advanced digital platform designed to streamline organ donation, matching, and transplantation. Traditional systems rely on manual processes, causing inefficiencies, delays, and lost life-saving opportunities. Unlike static donor registration websites, this system offers real-time data management, automated organ matching, and seamless coordination between donors, recipients, and hospitals, ensuring a transparent, efficient, and reliable process. The platform features an automated matching system that optimizes organ allocation based on medical compatibility, reducing wait times. Real-time notifications keep all stakeholders informed about transplant schedules, compatibility tests, and procedural updates. A feedback mechanism enhances system performance and accountability. Developed using Flutter for a responsive and intuitive user interface, Node.js for robust backend processing, and MongoDB for secure, scalable, and real-time data management, the system ensures cross-platform accessibility on mobile and web. The development environment integrates Visual Studio Code, providing an efficient and collaborative workspace. By leveraging modern technologies, the Organ Bank minimizes manual errors, accelerates decision-making, and improves communication, fostering trust among stakeholders. This innovative solution enhances the success rate of organ transplants, making it an essential tool in modern healthcare and contributing to the noble cause of saving lives.

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