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​.

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.**