# PadosiMart: A Hyperlocal Digital Platform for Empowering Local Commerce

Swaroop Shashikant Jadhav, Dhanshree Shivaji Bergal, Shrisha Suresh Patil, Suraj Dilip Bamane

*Undergraduate Students, Computer Science & Engineering, D. Y. Patil Technical Campus Talsande, Kolhapur, Maharashtra, India*
*Undergraduate Students, Computer Science & Engineering, D. Y. Patil Technical Campus Talsande, Kolhapur, Maharashtra, India*
*Undergraduate Students, Computer Science & Engineering, D. Y. Patil Technical Campus Talsande, Kolhapur, Maharashtra, India*
*Undergraduate Students, Computer Science & Engineering, D. Y. Patil Technical Campus Talsande, Kolhapur, Maharashtra, India*

## ABSTRACT

*Local shopkeepers, once the backbone of community commerce, face existential threats from large e-commerce platforms. PadosiMart offers a hyperlocal, scalable digital solution enabling small businesses to thrive in the digital economy. By dynamically adjusting service radii (100–800 meters) based on user movement and offering real-time storefronts, inventory management, and integrated delivery services, PadosiMart bridges the digital divide. Built with full-stack technologies (Node.js backend, Flutter mobile apps, MongoDB database), the platform empowers local retailers with a user-friendly, efficient, and accessible online presence. Future upgrades will include AI-driven inventory optimization and blockchain-based supply chain transparency. PadosiMart represents a decisive step toward preserving local economies in the digital age.*

**Keywords** — *Hyperlocal commerce, Digital marketplaces, Community empowerment, Local economy, E-commerce disruption*

## 1. INTRODUCTION

The evolution of commerce toward digital-first models has marginalized local retailers, who often lack access to affordable technology. Although neighborhood stores continue to foster trust and personalized service, consumers increasingly prioritize convenience. *PadosiMart* reimagines local commerce by integrating technology that offers proximity-based shopping experiences. The platform connects consumers with nearby trusted retailers, offering dynamic service radii that adjust in real time. By leveraging technology in a community-centered model, PadosiMart preserves neighborhood vitality while meeting modern shopping expectations.

## 2. PROBLEM STATEMENT

Traditional local businesses are increasingly sidelined by global e-commerce platforms. High barriers to digital adoption — including financial constraints, technical complexity, and lack of visibility — hinder small shopkeepers from competing effectively. Consumers, though willing to support local shops, often opt for the convenience offered by large online retailers. *PadosiMart* addresses this gap by empowering small shops to manage digital storefronts, real-time inventories, and delivery logistics within a hyperlocal framework. The platform offers both a technological solution and a strategic tool for strengthening community commerce.

## 3. LITERATURE REVIEW

### [3.1] Digital Enablement of Micro-Retailers

The CGAP (2023) report underscores that micro-retailers are crucial to local economies but remain digitally underserved. Inclusive embedded finance and simple digital platforms significantly uplift small vendors, allowing them to remain competitive without requiring heavy technological investments. PadosiMart embodies this

principle by providing an affordable, easy-to-use digital ecosystem tailored for hyperlocal commerce.

### [3.2] SME Digital Transformation Barriers and Enablers
Spanaki et al. (2024) explore critical challenges faced by SMEs, notably technological complexity, digital illiteracy, and financial vulnerability. Their research identifies user-centric, low-complexity solutions as key enablers of digital adoption. PadosiMart's lightweight architecture, minimal learning curve, and affordable entry point directly address these barriers, accelerating digital transformation among micro-retailers.

### [3.3] Role of Location-Based Services (LBS)
Alsubaie et al. (2021) emphasize the role of real-time location tracking and geofencing in enhancing retail personalization and efficiency. By integrating a dynamic radius model (100–800 meters) that adapts to customer movement, PadosiMart ensures optimized local discovery, increasing user engagement and shopkeeper visibility within proximity networks.

### [3.4] Rise of Quick Commerce and Local Logistics
According to RedSeer & NASSCOM (2022), the emergence of quick commerce platforms like Zepto and Dunzo has revolutionized consumer expectations regarding delivery speed but often marginalizes traditional local retailers. PadosiMart uniquely bridges this gap by placing control of inventory, order management, and last-mile logistics back into the hands of individual shopkeepers, ensuring both speed and inclusivity.

### [3.5] Designing Multi-Vendor Marketplaces for Local Commerce
Müller & Brocke (2023) assert that the success of multi-vendor platforms hinges on usability, trust-building, and access to micro-analytics. PadosiMart's architecture, with features such as customer loyalty programs, shopkeeper dashboards, and hyperlocal search optimization, directly reflects these success drivers, empowering small retailers to compete effectively in a digital-first landscape.

## 4.  METHODOLOGY
A hybrid full-stack development model guided PadosiMart's creation:

**[1] Frontend**: Flutter mobile apps for Android and iOS.

**[2] Backend**: Node.js with Express.js.

**[3] Database**: MongoDB, enabling scalable, secure data storage.

**[4] Dynamic Geo-Location**: Service radius starts at 100–500 meters, expanding to 800 meters if needed.

**[5] Functional Modules**:

   **User Management**: Registration, login, profile handling.

   **Product Management**: Virtual storefronts, inventory updates.

   **Order Processing**: Real-time order notifications and status tracking.

   **Payment Integration**: Secure digital wallet and card transactions.

   **Delivery Management**: Real-time delivery tracking and assignment.

   **Analytics Module**: Insights into consumer behavior and sales trends.

User-Centric Design ensured the platform remained intuitive, focusing on minimal technical learning for shopkeepers.
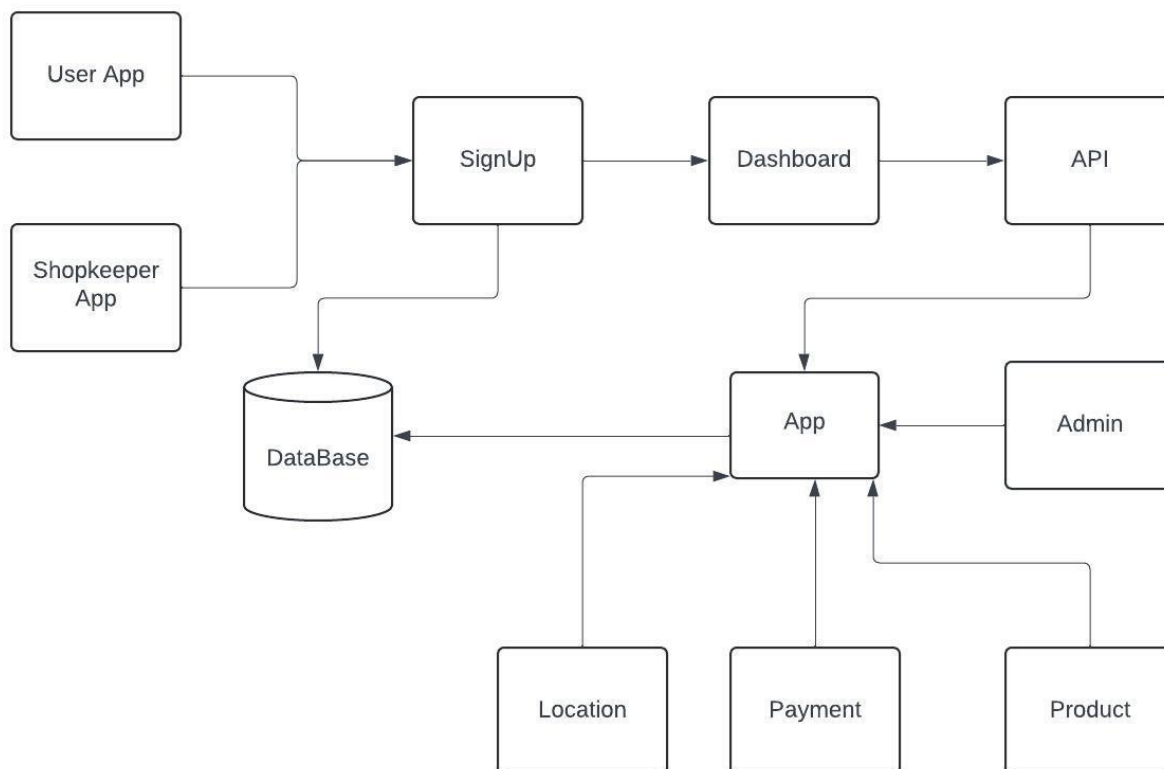
## 5.  System Architecture Diagram



**Fig 1: System Architecture Diagram**

The architecture integrates two apps (User and Shopkeeper) connected through a common backend. The signup system authenticates users and feeds data into a centralized database. The dashboard, API layer, and admin panel manage core functionalities like location tracking, product management, and secure payments. This modular design ensures scalability, security, and seamless hyperlocal operations.

## 6.  CONCLUSION

*PadosiMart* stands as a transformative platform, bridging the gap between traditional retail and digital commerce. It enables local shopkeepers to survive and thrive by offering tools previously accessible only to large e-commerce players. By focusing on hyperlocal dynamics, real-time inventory, and delivery efficiency, PadosiMart reimagines community commerce for the digital era. Future enhancements will incorporate AI-based predictive inventory, voice-enabled ordering, and blockchain for transparent transactions, ensuring continued innovation and scalability.

## 7.  REFERENCES

[1] CGAP. (2023). *Empowering small giants: Inclusive embedded finance for micro-retailers*. Retrieved from https://www.cgap.org/research/publication/empowering-small-giants-inclusive-embedded-finance-for-micro-retailers
[2] Spanaki, K., Papachristos, G., & Kounoudes, A. (2024). *Digital transformation in small and medium enterprises: a review and research agenda*. Journal of Small Business and Enterprise Development. https://doi.org/10.1007/s11846-024-00744-2
[3] Alsubaie, S. H., Alzahrani, B. A., & Alzahrani, A. M. (2021). *A survey of location-based service applications and enabling technologies*. IEEE Access, 9, 123456–123470. https://doi.org/10.1109/ACCESS.2021.9471320
[4] RedSeer & NASSCOM. (2022). *The rise of quick commerce in India: Opportunities and challenges*. Retrieved

from https://redseer.com

[5] Müller, S. D., & Brocke, J. V. (2023). *Designing a multi-vendor marketplace for local commerce: A case study of small-scale urban retailers*. Electronic Markets, 33, Article 653–665. https://doi.org/10.1007/s12525-023-00635-6