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Application Providing Facility of Micro Transactions through UPI to Nationwide NGO

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Abstract—**In the contemporary epoch, the strides of technology have fundamentally reshaped the societal dynamics of benevolence. This preamble introduces a mobile application constructed using the Flutter framework, meticulously fashioned to redefine beneficent offerings by providing a user-centric stage for endorsing non-governmental organizations and philanthropic endeavors across the expanse of the nation. The application champions a facile and economically judicious approach to bestowal, allowing contributions as modest as 10 rupees, thus assuring that even the most diminutive input may synergistically yield substantial metamorphosis.**

This software bequeaths a harmonious and instinctual interface, nurturing user interaction and fostering compassion for a plethora of noble causes. With an unwavering focus on the invulnerability of transactions and user information, the app assimilates fortified payment gateways, thereby augmenting user reliance and conviction.

Keywords—Mobile Application, NGO and Charity, Micro-Transactions, UPI, Smartphone, Welfare

I. INTRODUCTION

In an epoch distinguished by the fusion of technology and benevolence, the act of charitable contribution has unearthed novel pathways to effectuate profound change. This emergence heralds a pioneering mobile application conceived via the utilization of the Flutter framework, strategically positioned to reconfigure the topography of philanthropic pursuits and societal responsibility. By furnishing an efficient platform enabling micro-donations to an extensive array of non-governmental organizations and benevolent entities spanning the geographical confines of the nation, this app aspires to democratize endowments, endowing even the most minuscule offerings with pivotal significance in the crusade for positive transformation.

In tandem with the ever-evolving panorama of technological innovation, the arena for collaborative action has undergone an exponential expansion. The app under scrutiny not only champions accessibility and inclusivity but also harnesses technological breakthroughs to cultivate more robust affinities between users and the noble causes that resonate deeply within them. By means of its user interface, fortified payment methodologies, and real-time impact monitoring, the application endeavors to embolden individuals from diverse walks of life to actively partake in the shaping of societal constructs.

This prelude lays the foundation for a comprehensive exploration of the app's functionalities, advantages, and its latent capacity for profound metamorphosis. It accentuates the app's pivotal role as a catalytic force, fundamentally transmogrifying the paradigms governing human interaction with endeavors operating on an elevated echelon.

2. LITERATURE SURVEY

Presenting "aid"[1], an application tailored to facilitate the interaction between benefactors and requestors, encompassing provisions for both contributing and acquiring sustenance upon successful login. The application is subdivided into three principal segments: Benefactors, Bidders, and Administrators. Benefactors are vested with responsibilities such as enrolling/signing in, contributing donations, and perusing solicited donations. Users have the capacity to undertake tasks ranging from soliciting commodities to viewing requested items and requesting donations. Administrators, on the other hand, are tasked with the oversight and upgradation of data.

Both administrators and benefactors are granted visibility into the recipient's location. Gratuitous items are made shareable with other users, disseminated as notifications within the "free" section, with the associated messages being archived within the background dossier. A publication from 2015 titled "Nutrition Contribution Gateway"[2] provides a succinct explication on the emphasis placed on nutrition donation, presenting a conduit to connect donors with non-governmental organizations. The central focus lies in ameliorating the predicaments of food wastage, curtailing such squandering, augmenting the pool of available nourishment, and orchestrating a positive influence on individuals through these environments.

In an article published in 2016 titled "Transcending Food Redistribution: Leveraging Data and Communication Technologies to Mitigate Food Wastage"[3], the pivotal role of food security is delineated as a metric to gauge the quality of existence across societal strata. The recent economic downturn has precipitated an upsurge in food scarcity and destitution, particularly in emerging regions. Despite the mounting awareness and interest in dietary consumption and the imperative of minimizing and managing food wastage, the precise influence of Information and Communication Technology (ICT) in this domain remains nebulous and bereft of substantiated evidence.

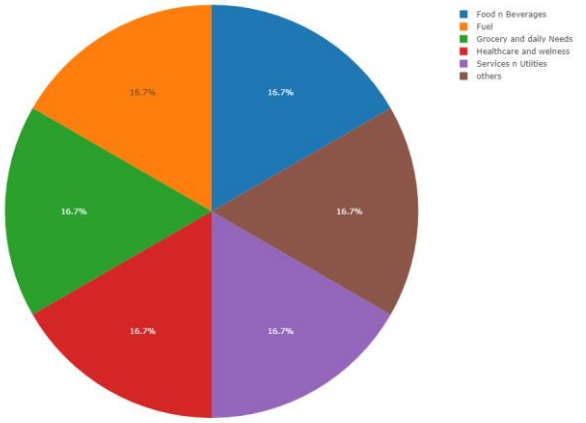
The "Blissful Existence Welfare Alliance"[4], an autonomous non-profit entity, is earnestly committed to elevating the quality of life for individuals by provisioning sustenance for the indigent and rendering shelter through its web-based portal. Here, individuals can contribute via assorted means, including monetary donations, food provisions, and voluntary participation in various events. An initiative by the moniker of "Notify Me Dabbah" is predicated on utilizing compact inscriptions and a substantial dabbawala (a lunchbox delivery person) to channel surplus victuals from the lunchboxes to underprivileged children inhabiting the streets.

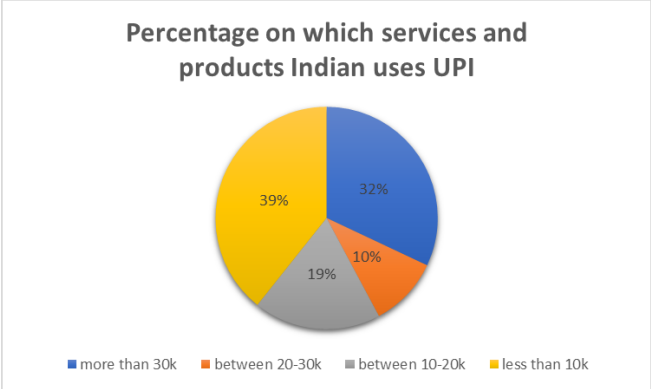
3.PROBLEM STATEMENT

Within the swiftly evolving expanse of digital transactions, an abundance of alternatives has arisen, facilitating the transmission and receipt of funds through virtual channels. This phenomenon has engendered an all-encompassing milieu for electronic commerce, spanning diverse sectors and transcending geographical demarcations. From peer-to-peer payment systems to electronic wallets and global remittance services, the digital domain has orchestrated a paradigm shift in the modus operandi of monetary dealings. Notwithstanding these myriad mechanisms that have been tailored to accommodate commercial transactions, a conspicuous lacuna persists: the conspicuous absence of a dedicated virtual milieu meticulously engineered for the facilitation of online philanthropic contributions. While technology has ushered in a convenient and accessible landscape for financial transactions, the dearth of a streamlined, impregnable, and user-centric platform designed exclusively for the act of donating to altruistic causes remains an unexplored potential. Such a platform would furnish individuals with the means to effectuate contributions with consummate ease, spanning a multitude of socio-environmental initiatives, thereby cultivating a cultural ethos of magnanimity that transcends the confines of geography and socio-economic strata.

3.1. SUPPORTING DATA DEMONSTRATING THE PREDICAMENT

Amidst the prevailing state of flux characterizing our swiftly evolving global milieu, a profusion of avenues unfolds for the electronic transmission and reception of pecuniary assets. This dynamic interplay has engendered a robust framework, constructing a formidable edifice within the domain of electronic commerce. This architectural marvel spans an eclectic spectrum of industries and seamlessly transcends the conventional bounds of geographical limitations. From the intricate fabric of peer-to-peer fiscal exchange mechanisms to the convenience-laden embrace of electronic wallets and the intricate web of services that seamlessly orchestrate cross-border currency transfers, the digital dominion has orchestrated a paradigmatic overhaul of our modus operandi when it comes to the intricate ballet of financial transactions. Yet, within this burgeoning landscape meticulously sculpted to conform to the contours of commercial enterprises, an overt chasm looms conspicuously—a stark void that lacks the presence of a bespoke digital haven crafted exclusively to usher in the era of online philanthropic endowments. Despite the inherent accessibility and convenience ushered in by the relentless march of technological innovation, an untrodden alley beckons—a realm of potential waiting to be unearthed. It's the territory of a meticulously curated, seamlessly orchestrated, and inherently user-intuitive platform, fortified with precision for the express objective of channeling the tides of benevolence toward noble causes. Envisioning and manifesting such a platform holds the promise of galvanizing individuals to engage effortlessly in an expansive tapestry of socio-environmental endeavors, thereby weaving a rich cultural tapestry of magnanimity that effortlessly transcends the frontiers of geographical delineation and socio-economic stratification.





At the inception of the platform in April 2016, a mere 21 banks had subscribed to its services. As the pandemic took hold and consumers progressively embraced digital financial transactions, the landscape of Unified Payments Interface (UPI) interactions burgeoned with remarkable vigor throughout the lockdown period. The recent deceleration in this trajectory can be ascribed to the escalation of transactional predicaments, emanating from recurrent technical glitches within banking systems. These glitches have also resulted in the displacement of Google Pay from its perch as the vanguard of the UPI market. Google Pay had, in its zenith, accounted for an impressive 857.8 million transactions in October, subsequently cresting at a pinnacle of 960 million transactions in November. These figures, translating to an approximate market share of 43% in the domain of UPI payments, painted Google Pay as a commanding presence. However, the platform's momentum has since encountered an uninterrupted descent. Transactions dwindled to 854.4 million in December, followed by 853.5 million in January, and further waned to 827.86 million in February.

Parallelly, the UPI sector pacesetter, PhonePe, achieved a significant milestone in March, crossing the threshold of one billion UPI transactions. "In March, our UPI transactions breached the one-billion mark. Over the last month, the cumulative transactions across our diverse payment instruments - encompassing digital wallets, cards, and UPI - culminated at 1.3 billion," shared a spokesperson for PhonePe. The indigenous digital payments app, Bharat Interface for Money (BHIM), developed by the National Payments Corporation of India (NPCI), has also borne witness to a commendable surge in transaction volume. BHIM, which recorded approximately 14 million transactions (amounting to ₹4,504 crore) in April 2020, has now ascended to a tally of 24.4 million transactions (equating to ₹7,653 crore) in March 2021.

The ripple effect of this trend is felt even within the realm of Indian banks, especially those of smaller dimensions. Axis Bank and Yes Bank have surged ahead with the fastest rates of expansion, with transaction volumes scaling to 72.9 million (from 2 million a year prior) and 29.1 million (compared to 1.9 million a year ago), respectively. Conversely, larger banking establishments have exhibited more sluggish growth trajectories. ICICI Bank, which had reported 10.6 million transactions in April 2020, has manifested growth to the tune of 13.95 million transactions in March 2021. The behemoth of Indian banking, State Bank of India, noted a transactional volume of 4.6 million transactions in contrast to the 2.7 million reported a year earlier.

4. PROPOSED SYSTEM

1. Introduction:
The envisaged system endeavors to establish a comprehensive nationwide platform for charitable contributions, poised to usher in a revolutionary paradigm shift in the landscape of philanthropic endeavors spanning the entirety of the nation. Anchored upon a Flutter-based application, this digital solution will be underpinned by the pillars of convenience, security, and impact monitoring, thereby ensuring a user-centric interface that serves the dual purpose of facilitating benefaction and fortifying the operations of charitable organizations.

2. System Features:

2.1 User Authentication and Profile Management:
Users shall be endowed with the ability to securely register and log in through their email or social media credentials. The provisioning of personalized user profiles will empower donors with the capacity to oversee their donation history, preferences, and communication settings.

2.2 Comprehensive Catalog of Charitable and Non-Governmental Entities:
The app's repository will encompass an eclectic compendium of well-established NGOs and charitable institutions, meticulously categorized based on their alignment with social, environmental, and humanitarian causes. Each entity's profile will be replete with comprehensive information elucidating its mission, ongoing initiatives, and tangible impact.

2.3 Microdonation Facilitation Platform:
At the heart of this application lies the Microdonation Platform, an instrumental feature that empowers users to contribute sums as modest as 10 rupees to their chosen NGOs or charitable organizations. The underlying interface shall manifest an innate simplicity, rendering the process of making donations seamless, and augmented with a diverse array of secure payment mechanisms.

2.4 Real-time Impact Monitoring:
Donors shall be furnished with instantaneous updates pertaining to the outcomes precipitated by their contributions, thereby vividly showcasing the tangible metamorphosis catalyzed by their micro-donations. This facet of the app shall be hailed as a beacon of transparency, accountability, and empowerment for its users.

2.5 Fortified Payment Gateway:
A robust and impregnable payment gateway shall serve as the bedrock, guaranteeing the sanctity of financial transactions and the confidentiality of personal information, thus bolstering the bedrock of trust between the application and its users.

2.6 Social Network Integration for Sharing and Engagement:
End-users shall be empowered to directly share their charitable endeavors on various social media platforms, seamlessly originating from the app itself. Beyond simply endorsing the causes close to their hearts, this feature shall serve as an active catalyst, encouraging others to join the noble philanthropic movement.

2.7 Push Notifications and Reminders:
The app's architecture will be underpinned by a sophisticated system of personalized notifications, which shall, in turn, serve as gentle nudges, urging users towards regular, consistent, and sustained benefaction in support of their chosen causes.

2.8 Generation of Tax Receipts:
For those beneficiaries who qualify, the application shall play the role of a virtual scribe, generating meticulously formulated donation receipts that qualify for tax deductions, thereby functioning as a potent incentive for prolonged and heightened engagement.

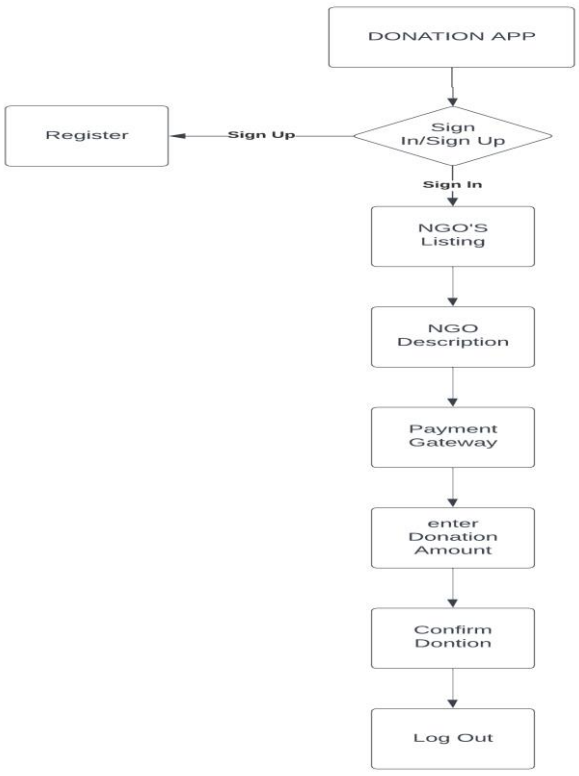
3. Technical Implementation:

3.1 Cross-Platform Development Leveraging Flutter:
The developmental journey of this app shall unfold within the purview of the versatile Flutter framework, a decision underpinned by the quest for seamlessness and visual exquisiteness across both Android and iOS platforms.

3.2 Backend and Database Framework:
A fortified and impervious backend architecture, complemented by a robust database, shall be entrusted with the management of user profiles, donation records, organizational data, and real-time impact tracking information. The options under contemplation span Firebase and custom-built backend solutions.

3.3 Integration of APIs:
The harmonious integration with an array of APIs, encompassing payment gateways, social media sharing protocols, and push notification services, shall serve as the conduit for delivering an uninterrupted and user-centric experience of multifaceted functionality.

4.1 FLOW CHART



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