



UM Hackathon 2025

# PROPOSAL

## DonApp

*Universiti Teknikal Malaysia Melaka*

**Team Name: Abitry**

*Domain 1: Enhancing Charity & Donations through Fintech & Technology*

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## Introduction

DonApp is a groundbreaking donation platform that redefines the way charitable contributions are managed and experienced. More than just a digital interface for transactions, it is a comprehensive ecosystem that connects donors and recipients in a meaningful, transparent, and engaging manner. Built with Figma, the prototype showcases an elegant, user-centric design that combines modern UI aesthetics with the cultural nuances and religious compliance required for managing Sadaqah, a form of voluntary Islamic charity.

At its core, DonApp emphasizes a seamless interaction experience. When users log into the app, they are greeted with a personalized profile that not only showcases their donation history but also highlights achievements and badges earned through their philanthropic efforts. This gamification element is intended to foster a sense of accomplishment and encourage continuous giving. The platform is designed to reward regular contributions through interactive leaderboards and community challenges that illustrate the collective impact of their actions, thereby nurturing a vibrant, engaged community.

Beyond the profile, the application features a dedicated settings area where users can manage their account details and privacy preferences with ease. The settings screen also reinforces the platform's commitment to Shariah-compliance by prominently displaying essential privacy policies and toggles for receiving donation reminders or urgent Sadaqah campaign alerts. This integration of religious and technological elements reassures users that their contributions are managed in a responsible, ethical, and culturally respectful manner.

Donation campaigns are brought to life through dynamic and informative campaign pages. These pages present each campaign with verified badges, clear progress indicators, and compelling interactive stories that provide detailed insights into the cause and the potential impact of each donation. Donors can quickly assess the urgency and relevance of campaigns, decide whether to contribute money or in-kind donations, and follow the flow of funds in real-time via visual trackers that monitor how close campaigns are to achieving their milestones.

The application supports multiple payment methods, including mobile wallets and QR code-based transactions, ensuring that users from diverse financial backgrounds can participate with ease. Furthermore, DonApp is designed integrating features that align with the principles of Sadaqah and Islamic charitable giving.

With its focus on transparency, efficiency, and user engagement, DonApp stands out as a versatile platform tailored for the modern philanthropic landscape. The app is designed to be accessible, with intuitive navigation and responsive design that works seamlessly across both mobile and web devices. In summary, DonApp not only simplifies the donation process but also empowers users with robust tracking and feedback mechanisms, fosters a sense of community, and upholds the values essential to Islamic charity.

## **Background Studies**

In today's digital era, charitable donation platforms face an array of challenges that affect both donors and recipients. One of the most significant issues is the lack of transparency and trust. Many traditional systems do not provide clear, real-time tracking of donations, which can lead to concerns over fund misallocation and limited accountability. Donors often find it difficult to see exactly how their contributions are used, eroding the confidence that is essential for continuous support.

Moreover, inefficiencies in fund distribution compound these trust issues. Manual processes and outdated technologies slow down the allocation of donations, delaying much-needed assistance and diminishing the overall impact of charitable efforts. This is particularly critical when time-sensitive aid is required, as delays can directly affect the wellbeing of those in need.

User engagement is another area where current platforms frequently fall short. With the rise of digital fintech solutions, there is a growing expectation for interactive and gamified experiences that can motivate donors and keep them actively involved. Integrating elements of gamification not only makes the giving process more enjoyable but also encourages donor retention by providing tangible rewards and milestones.

For platforms managing Islamic charitable funds, such as Sadaqah, cultural and religious relevance is paramount. Adherence to Shariah principles builds the necessary trust among users, ensuring that their contributions are handled in a manner consistent with their values. Recent studies have demonstrated that incorporating gamification and transparency features can significantly boost engagement, even in highly regulated and culturally specific environments. As a result, many organizations are now turning to modern design prototypes—often developed with tools like Figma—to iterate on UI/UX and test innovative solutions before committing to full-scale development.

## **Objectives**

DonApp is designed to enhance transparency by providing a digital ledger and real-time updates that give donors clear visibility into how their contributions are used. With every transaction logged securely, users can easily track their donations, ensuring that funds are traceable and managed with complete accountability.

The platform also aims to improve efficiency by streamlining the entire donation process. From initiating donations to monitoring impact, DonApp offers a user-friendly interface that delivers clear information about campaign status and milestones. This optimized flow not only simplifies the donation experience but also reduces delays in fund distribution.

A key goal of DonApp is to boost user engagement through innovative gamification elements. Features such as donation streak badges, interactive leaderboards, and community challenges recognize individual efforts while cultivating a sense of shared purpose and collective impact. This approach turns giving into an engaging and rewarding activity.

Finally, the platform is committed to ensuring cultural and religious relevance by integrating Shariah-compliant features. DonApp builds trust and resonates with its target audience. The intuitive user interface, developed in Figma with culturally significant design elements and a harmonious color palette, ensures that users enjoy a smooth, visually appealing navigation experience.

## Methodology

The DonApp platform leverages a sophisticated blend of modern technologies to create a secure, efficient, and user-friendly donation ecosystem. Each technological component is carefully selected and integrated to address the platform's goals of transparency, efficiency, and user engagement while ensuring compliance with cultural and religious principles, such as those required for managing Islamic charitable funds like Sadaqah. Below, we break down the key technologies and their roles in the system.

### 1. Login Application Using Gmail and Social Media

- **Technology:** Firebase Authentication
- **Description:**

DonApp implements Firebase Authentication to facilitate a seamless and secure login experience. This service supports authentication via Gmail and social media platforms (e.g., Facebook, Twitter) using OAuth 2.0 protocols.
- **How It Works:**
  - When a user selects “Login with Gmail” or a social media option, Firebase manages the authentication process by securely verifying credentials through the respective provider's servers.
  - Upon successful verification, Firebase issues an access token, granting the user entry to the app without storing sensitive login data locally.
  - This method ensures scalability, allowing the platform to handle growing numbers of users, and enhances security by leveraging Firebase's robust infrastructure.
- **Role in DonApp:**
  - The login system aligns with the app's user-centric design by offering quick access while maintaining high security standards. In the Figma prototype, login buttons for Gmail and social media are included, simulating this functionality for the live application.

## 2. Payment Gateway Integration (Visa and Touch ‘n Go)

- **Technology:** Stripe for Visa and DuitNow for Touch ‘n Go
- **Description:**

DonApp integrates two payment gateways to cater to diverse user preferences: Stripe for Visa card payments and DuitNow for Touch ‘n Go eWallet transactions.
- **How It Works:**
  - **Stripe (Visa):**
    - Stripe’s API enables secure processing of Visa card payments. It uses tokenization to encrypt sensitive card details, ensuring compliance with Payment Card Industry (PCI) standards.
    - Users enter their card information, and Stripe handles the transaction, transferring funds to the designated campaign securely.
  - **DuitNow (Touch ‘n Go):**
    - DuitNow, widely used in Malaysia, supports Touch ‘n Go eWallet payments via QR code-based transactions.
    - Users scan a QR code generated by the app or are redirected to the Touch ‘n Go app to complete the payment, making it fast and convenient for mobile wallet users.
- **Role in DonApp:**
  - These gateways enhance accessibility by offering multiple payment options, supporting the proposal’s emphasis on inclusivity. The Figma prototype includes a payment screen with Visa and Touch ‘n Go options, which, in the live app, trigger the respective payment flows.

## 3. AI Application for IC Card Validation

- **Technology:** Optical Character Recognition (OCR) with TensorFlow
- **Description:**

To verify user identities via IC cards (e.g., Malaysian MyKad), DonApp employs an AI-driven OCR system built with TensorFlow, an open-source machine learning framework.
- **How It Works:**
  - Users upload an image of their IC card through the app.

- The OCR model, trained on a dataset of IC card images, extracts text such as the IC number, name, and address, adapting to variations in image quality (e.g., lighting, angles).
- The extracted data is validated against a database (mock for testing, real in production) to confirm authenticity, ensuring only legitimate users access restricted features like posting donation requests.
- **Role in DonApp:**
  - This feature enhances transparency and trust by verifying user identities, aligning with the platform's accountability goals. The Figma prototype includes a "Verify IC Card" button, which simulates this process, while the live app would display validation results.

#### 4. AI Application for Face Verification

- **Technology:** Face Recognition with OpenCV and Dlib
- **Description:**

DonApp uses OpenCV and Dlib, powerful computer vision libraries, to implement face verification for added security, particularly for high-value transactions or recipient verification.
- **How It Works:**
  - The app captures a live image using the device's camera when verification is required.
  - Dlib's facial landmark detection identifies key facial features (e.g., eyes, nose), and OpenCV processes the image to compare it with a reference photo (e.g., from IC card registration).
  - A deep learning model (e.g., FaceNet) calculates a similarity score; if it exceeds a set threshold, the user's identity is confirmed.
- **Role in DonApp:**
  - This strengthens security and trust, critical for a donation platform handling sensitive transactions. In the Figma prototype, a "Face Verification" screen with a camera placeholder represents this feature, which activates the verification process in the live app.



## 5. Algorithm to Show Donation Programs in Nearby Areas

- **Technology:** Geolocation with Google Maps API and K-Means Clustering
- **Description:**

DonApp uses the Google Maps API and K-Means clustering to identify and display donation programs near the user's location efficiently.
- **How It Works:**
  - With user permission, the Google Maps API retrieves the user's current location and queries a database for donation requests within a specified radius.
  - K-Means clustering groups these requests into clusters based on proximity, optimizing performance for large datasets.
  - The algorithm ranks clusters by relevance (e.g., urgency, funding progress, user preferences) and displays the top nearby programs on a map interface.
- **Role in DonApp:**
  - This feature enhances user engagement by connecting donors with local causes, supporting the platform's community-building objectives. The Figma prototype's "Nearby Donations" screen shows a map with pins, which the live app populates dynamically using this technology.

## References

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