TATAKAE

ShunoBondhu: A Voice-Assisted Mobile App for Paddle Rickshaw Pullers in Bangladesh

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Pain Point

Rickshaw pullers in Bangladesh face multiple challenges while navigating unfamiliar routes, managing earnings, and ensuring personal safety. Despite being smartphone users (at least partially), they struggle with digital literacy, technology usability, and lack of tailored digital tools. Our design aims to create a simple, voice-first mobile application that helps rickshaw pullers **(a) access quick emergency support. (b) navigate routes safely, (c) keep track of earnings, and (d) speed monitoring**

Target Population & Sample : The target population is **rickshaw pullers in Dhaka City**, many of whom:

- Belong to lower-income groups.
- Have limited formal education.
- Use both button phones and smartphones, with varying digital literacy.
- Are heavily reliant on oral/voice communication and recognition of landmarks instead of text or maps.

Sample Studied:
We conducted **3** focus group discussions with a total of **10-12** rickshaw pullers (**3–4** participants per group) near local **tea stalls** at different **busy rickshaw stands**. In addition, we carried out several semi-structured interviews with individual rickshaw pullers to capture deeper personal perspectives. The participants varied in age (**mid-20s to 50s**), phone use (from button phones to smartphones), and work experience.

Incentives for Participation: To appreciate participants' **time and effort**, we offered small incentives such as **light snacks** (Butter Bun/ cake) & **a cup of Tea**. These were provided after each session to ensure comfort and encourage participation.

Method & Rationale: We used **Qualitative User-Centered Research** (**Focus Groups + Semi-Structured Interviews)**

- **Why Focus Groups?** Rickshaw pullers are highly social; so **discussions with peers** revealed common struggles, coping mechanisms, and honest reactions about tech. Group settings helped them **feel comfortable**, **rapport building** and **encouraged storytelling.**
- **Why Interviews?** One-on-one enquiry clarified their **personal experiences**—like specific safety incidents, earning patterns, and tech usage.

This dual-method approach ensured both **breadth (shared norms)** and **depth (personal stories)** of data.

Key Findings & Takeaways: From our conduction, several themes emerged:

1. **Work Patterns & Breaks**
    - Rickshaw pullers typically take a **long lunch break (1–3 PM)** and occasional tea breaks.
    - They often rest passively when they fail to find passengers.

Design implication: Our app could suggest best times/locations for passengers and optimize

break schedules.

2. **Navigation & Route-Finding**
    - They avoid unfamiliar or risky routes (fear of theft, assault).
    - They depend on **asking other rickshaw pullers, shopkeepers, or passengers** instead of using maps.
    - Landmarks like **mosques, schools, hospitals, and parks** are crucial for remembering routes.

Design implication: Navigation must be voice-assisted & landmark-based, not text-heavy Google Maps clones. *(For example- instead of "go 200m east," our app will say "*মসজিদের কাছে বাঁ দিকে যান, তারপর স্কুলের পর ডানদিকে নিন।*".)*

3. **Technology & Smartphone Use**
    - Many have smartphones, but usage is **limited to Facebook, YouTube, Tiktok**, often by voice search.
    - Typing in English or Bangla is a major barrier; voice feels natural.
    - Apps like Uber/Pathao are rarely used—they find them too time-consuming and complicated.

Design implication: Our app must prioritize voice input/output, icons, images and minimal text.

4. **Earnings & Financial Tracking**
    - Daily earning targets range from ৳**500–1000**, but most don't record earnings formally.
    - They rely on memory, send money home, and pay daily rental (৳350–400).
    - They were excited about the idea of an app that tracks earnings by voice.

Design implication: Building a voice-first earning tracker with simple summaries ("আজ আপনার ৯৫০ টাকা আয় করেছেন***").***

5. **Safety & Emergencies**
    - Rickshaw pullers face **accidents, theft, and harassment from passengers & robbers.**
    - During emergencies, they rely on **rickshaw owners (Mohajon) and family**; police help is seen as unreliable. They also preferred a **one-tap emergency alert system.**

Design implication: Adding a SOS button/voice trigger to instantly alert owners/family.

6. **Attitudes Toward a Rickshaw App**
    - Strong interest if it saves **time, effort, and reduces stress.**
    - **Voice commands, Earnings,Route help,Speed monitoring** = most valued features.
    - Distrust toward overly complex or text-heavy apps.

Design implication: Keeping our app lightweight, offline-friendly, voice-driven, and context-aware.

Impact on Design Approach: Based on this formative assessment, our design will prioritize:

1. **Voice-first interaction** – for navigation, earnings, information, & monitoring speed.
2. **Landmark-based routing** – instead of heavy map visuals.
3. **Emergency support system** – quick alerts for owners/family.
4. **Earnings tracker** – simple, voice-based summaries.
5. **Cultural sensitivity** – design in Bangla, using familiar terms/icons.

Appendix: Focus Group and intervie Images and video [Thank You]