

SRN – Smart Rickshaw Network

MISSION STATEMENT – Targeting rickshaw drivers of BOP section from developing countries as micro workers to provide real time traffic, landmark and tourist hot spot updates & act as advertisement medium; which will help in uplifting their living and at same time addressing the problem of Traffic Congestion & Mobile Recycling.

By - Aadhar Bhalinge

Problem Background

Rickshaw Drivers Economic Condition:

- In cities across South Asia, due to absence of adequate mass transport systems the ubiquitous rickshaw dominates traffic tangled streets. But Rickshaw/Taxi drivers in India, Bangladesh, Nepal, Pakistan, Egypt and other developing countries are extremely poor and most of them live below the poverty line.
- Following statistical numbers will add more to this:
 - "Taxi drivers are among the 55% of the population living under the poverty line of \$2 a day," reported in a CNN article (Egypt).
 - Similar is the story of approx. 10 million Indian Rickshaw Drivers who earn approx. \$4 a day.

Challenges of gathering Real Time Traffic Data in developing countries:

- In developed countries, Traffic data is collected by entities like GPS product companies, Traffic Info Providers & Government Traffic Units by using modern fiber-optic cables embedded in the pavement to sensor boxes along the roads or through Advanced Traffic System (ATS).
- But such high tech sensor systems require high installation and maintenance costs which are not available & feasible on road conditions of developing countries and thus to determine real time traffic is a challenge for this entities.
- At the same time customers of the GSP companies in developing countries want real time traffic updates due to increasing traffic congestion. And it is no more just a matter of good to have feature but a necessity of time. Also the maps lack detailed landmarks.
- Some companies like Google maps try to get passive/automatic traffic information from existing users using FCD (Floating Car Data) method, but it acts just as a helper to conventional source because of its inaccuracy due to factors like direction, altitude, congestion, weather conditions, slippery road conditions, etc., which can affect speed of vehicle but it will be treated incorrectly as a 'Traffic Jam'.

Solution

- ‘SRN’ is a solution to all these problems. It targets this section(rickshaw drivers) of BOP as micro workers, to uplift their living and at same time provide real time traffic data, landmark and tourist hot spot updates, advertisement medium to Clients - GPS navigation product companies like Nokia Maps, MapMyIndia, etc., Traffic Info Providers like Inrix, Government Traffic Unit, Advertisers, Tourism Industry in developing countries.
- **SRN is ‘by’ and ‘for’ rickshaw drivers** – it empowers existing ‘rickshaw union’ with technology to act as entrepreneurs and help rickshaw drivers to gain additional income using a **Franchise Model**.
- SRN makes sure that the registered Rickshaw drivers are **SMART**, i.e. they have required skills, train them and check if they are reliable source (checking Driving license & other driver details) for ensuring the **Quality & Reliability** of Traffic, Landmark & Tourist Data.
- Rickshaw drivers cover all most all roads and areas, and are on **continuous move** from day to night, they are **aware of most locations** & which ones are currently **popular**. This existing information pool can be of great use to clients. SRN aims to tap this information pool.
- For traffic updates – drivers use SRN Client application on smart phones(with GPS); they can send the traffic status with a **tap(touch screen)/voice command** when rickshaw is halted for some time like in traffic / when traffic signal is red/ after dropping the passenger to destiny.
- SRN Client application will automatically detect the GPS coordinates, road & area; driver just have to input the traffic status. This data is then send via internet/auto sms (if net unavailable).
- SNR Server application at SRN organization will automatically calculate the Traffic Output. Similar result from majority of microworkers for a given location will be considered accurate. Traffic update will be send to clients at regular time intervals as per client’s requirement.
- Drivers can send landmark (name: manual, coordinates: auto calculated) & tourist spot (hotels, stores, etc.) updates (SpotPopularity: manual, coordinates: auto calculated) even after work hours.
- Rickshaw advertisement can be printed after work hours, no special work required from drivers.

Business Model

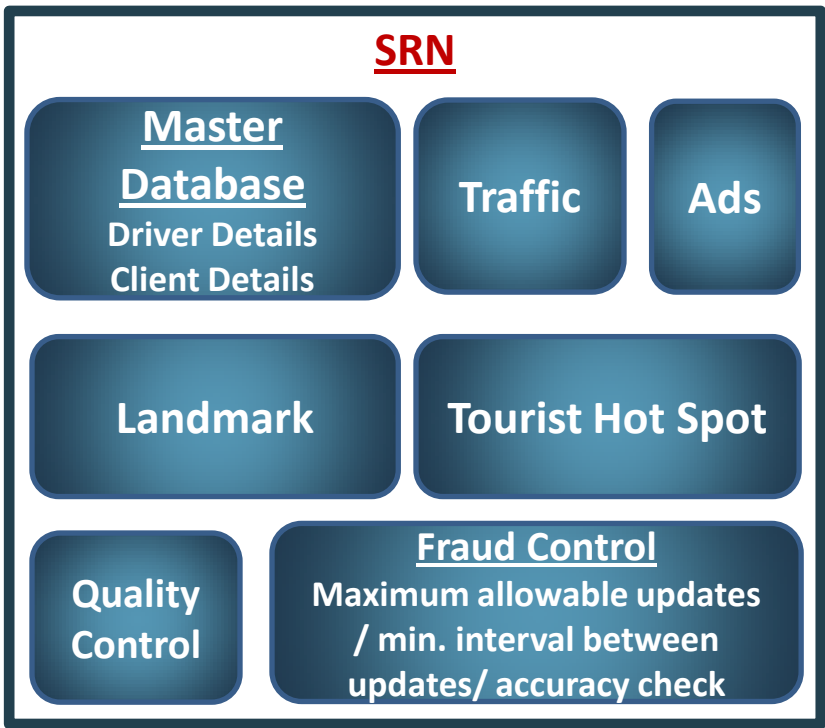


Traffic/
Landmark/
Tourist/Ad
Status



Clients

- GPS companies
- Traffic Info Providers
- Government Traffic Unit
- Advertisement Industry
- Tourism Industry



Data Send By Rickshaw drivers

- Traffic Update
- Landmark
- Tourist Hot Spot



MicroWorker

Revenue /Cost Model

Client Costs

Traffic –
Approx. \$8 million/year for a city, which is much cheaper than ATS cost – [\$150 million (one time) + \$17million (per year)]
Landmark/Hotspot - \$0.2 per landmark/hotspot
Ads – \$0.3 / day

SRN Startup Cost

- Initial Setup Cost – (Approx.) \$80,000**
1. Database & Application Servers
 2. Software development
 3. Three-Four Staff members -
 2 IT guys for s/w & h/w support
 1 Coordinator/Trainer for drivers
 4. Smart Phones

Revenue - SRN gets \$0.1/ per driver per day - keeping minimal SRN profit & more benefit to mircoworkers.

MicroWorker Payment

- Traffic - \$2 / day
- LandMark/HotSpot – \$0.02 / update
- Ads - \$0.2 / day

Approx. \$80 per month

Instant Weekly Payout using Mobile Money.

Fraud activity monitored weekly and detected drivers will be blacklisted.

Novelty and Innovation

- For the first time, rickshaw drivers network will be utilized to act as source for real-time traffic/ landmark / tourist hot spot updates and advertisement using microwork model and mobile technology, in developing countries.
- Intelligent 'Safe Mode' feature for safe driving and easy to use mobile application design.

Benefits

- **Additional Income** for the Rickshaw/Taxi Drivers from developing countries who are living below poverty line, and will get a chance to improve their economic status with **easy to do micro jobs**.
- **Reliable Data Quality** because SRN will register only qualified/verified/trained drivers for the jobs.
- **Cost Effective For Clients** to get real time traffic updates, as compared to installation & maintenance costs of road sensors.
- **Expandable Microworker Target Group** for traffic & landmark updates - newspaper sellers, road side hawkers, etc.
- **Mobile Recycling** = Environmental Consciousness.

Challenges

- **Safety** – Updating traffic status manually through sms / typing can be unsafe, but with the help of smart phone & smart mobile application, input can be got from single tap(touch screen)/ voice command. Safe Mode(speed check) & proper mobile stand position will help in **Quick & Safe** process.
- **Fraud** can happen if workers keep sending updates continuously, this can be controlled by having a minimum time interval check of consecutive traffic/landmark update for same location. Secondly, depending on traffic/landmark update requirement a maximum cap can be set on number of updates per day. This controls will limit the number of updates required & in turn will act as a safety measure.
- **Providing smart phones** to drivers can add to initial setup cost, but still it will be cheap as compared to conventional traffic setups (ATS). To reduce this cost further, we can use recycled mobile phones + phones got from charity organizations – unused phones donated by people.