Building a Transportation Information System Using Only GPS and Basic SMS Infrastructure

Goals and Problem Space:

- **Context**: Marshrutka bus system in Bishkek, Kyrgyzstan
- **Design ethnography** and **survey data** identify transportation as a common challenge: unpredictable, unsafe and inefficient.
- **Challenges**: Marshrutka buses have set routes but no set stops or expected arrival times
- **Goal:** help users determine when next bus will arrive. Allows safer, more efficient system, encouraging ridership.
- Survey data points to high mobile phone penetration and use of SMS, but low Internet usage rates.

Mobile phone and SMS-based solutions have best potential for wide adoption.

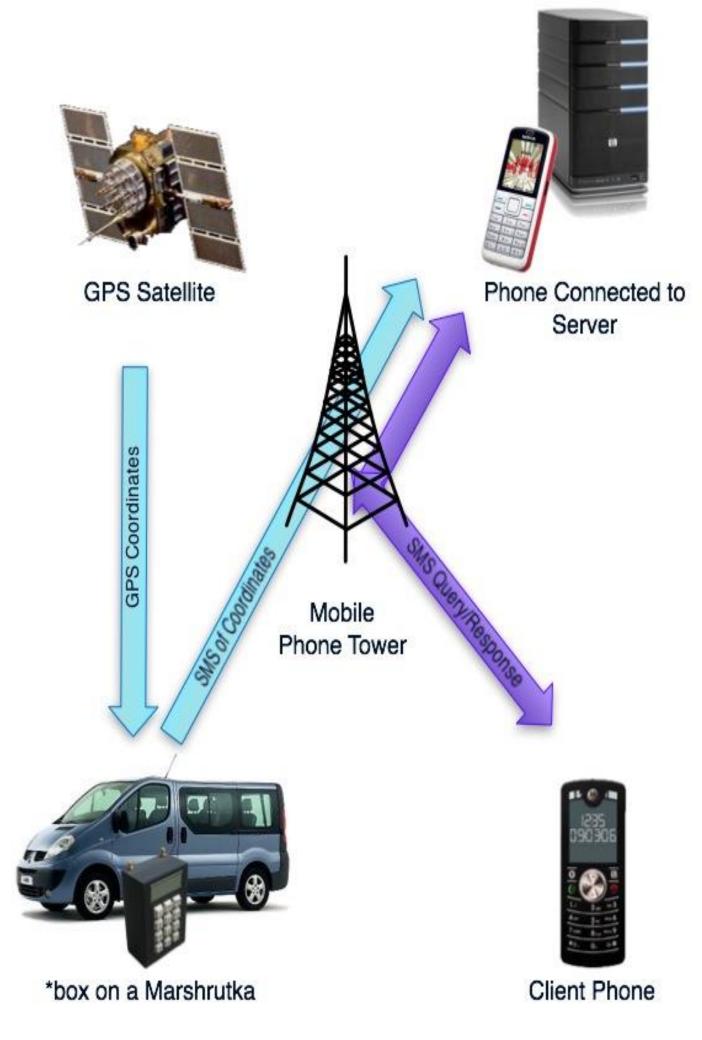




Marshrutka buses in Bishkek, Kyrgyzstan



System Architecture:





0%			
	Owned Computers	Used the Internet	Owned and used mobile
2006	7%	11%	21%
2007	8%	10%	45%
2008	12%	15%	71%

Personal Technology Use in Kyrgyzstan

System Components:

- *box: low-cost vehicle tracker containing a GSM modem and a GPS unit.
- Server: Laptop or desktop connected to phone capable of sending & receiving SMS messages.
- **Users** communicate with server via SMS (aka "text") messages.

Example User Interactions:

Query the Arrival Time of a Bus





Current Status:

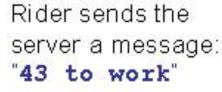
- Prototype Tested in Seattle
- Tested in Bishkek in March 2009



Marshrutka route in Bishkek, Kyrgyzstan



Rider wants to know when next bus on route 43 is coming to their current location "work".



Tagging Locations



Rider is at a location they would like to tag.



A bus with unique Rider sends the bus-id "123" goes by. server a message: (e.g. license plate #) "store 123 as home"



rider's private

location name.

Server consults real

time map of buses.



Rider receives a reply:

"Next 43 arrives

to work at

about 11:17"

Rider can use the location "home" in future queries.





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