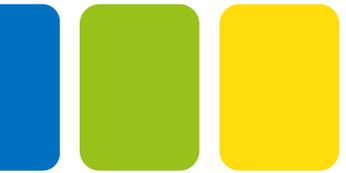




NATIONAL TECHNICAL UNIVERSITY OF ATHENS

SCHOOL OF CIVIL ENGINEERING

DEPARTMENT OF TRANSPORTATION PLANNING AND ENGINEERING



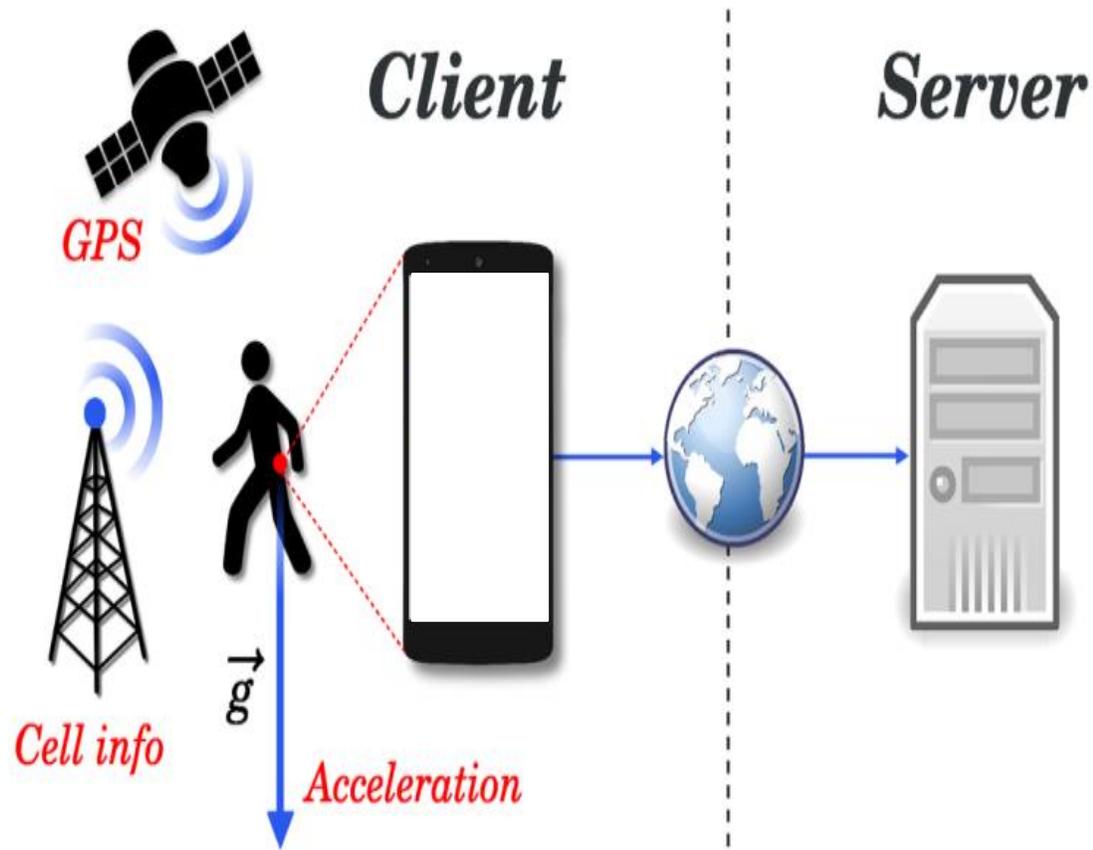
Methodological Issues and Concerns from Using Smartphones to Collect Driving and Mobility Data

Eleni Mantouka, Ph.D. Candidate

Emmanouil Barmounakis, Ph.D.

Eleni Vlahogianni, Ph.D.

Crowdsourcing Systems - Advantages



- Unlimited capabilities of smartphones (storage, sensors etc)
- Cost – effective
- Time reduction - Accuracy
- Monitor large – scale phenomena



Methodological Issues and Concerns

- Data quality
 - Technical Characteristics of the device
 - Trustworthiness
- Privacy and Security
- Data collection, storage and retrieving
- Incentives
- Representativeness
- Data preparation
 - Exclude noise
 - Privacy – aware functions
- Data processing
 - Statistical Methods
 - Machine learning
- Battery consumption



Conclusions

- Smartphones constitute the most **cost – effective** way for collecting data and monitoring user's behavior
- The key for a successful crowdsourcing system is to give **incentives** to the crowd in order to ensure their engagement with the system
- **Privacy and security issues** are probably the most important factors for the users to share their data

Future research

1. Identify issues through a case study
2. Address methodological issues and concerns



Thank you for your attention

Eleni Mantouka

Emmanouil Barmponakis

Eleni Vlahogianni