Incentive Engineering for Smart Cities

Seb Stein

ss2@ecs.soton.ac.uk

Agents, Interaction and Complexity Group
Centre for IoT and Pervasive Systems
Electronics and Computer Science
Air Pollution Monitoring

On-Demand Mobility

Electric Vehicle Charging
Air Pollution Monitoring

WHO: 4.2 million deaths every year as a result of exposure to outdoor air pollution

Low-cost crowdsourced monitoring solutions enable real-time awareness and prediction

Where to take measurements?

How to incentivise participation?
Gamification, financial incentives, referral incentives?
Transport was the largest emitting sector of UK greenhouse gas emissions in 2017

- Transport: 27%
- Business: 17%
- Residential: 15%
- Energy supply: 24%
- Waste management: 4%
- Agriculture: 10%
- Other: 2%

Electric Vehicle Charging

On-Demand Mobility

- Prices are adjusted depending on supply and demand
- Relocations that help the system are incentivised through discounts
- In simulations based on real data, we show a significant increase in revenue (35%) and a reduction in relocations (27%)
- We conducted a survey with Ha:mo users. About 50% of users would consider walking an extra 1km for a discount