Impact of Shared Autonomous Vehicles on parking demand

シェア型自動運転車導入時の駐車場整備量への影響

東京大学 生産技術研究所 大口研究室（交通制御工学）
http://www.transport.iis.u-tokyo.ac.jp/
Yusuke Kumakoshi (熊越 祐介)

1. Shared Autonomous Vehicles & city
- Shared Autonomous Vehicle (SAV) system will be a mobility service of new era.
- SAVs will affect the transport system of today → Need to study its impact

2. Motivation
- Relocation of SAVs after one trip is possible → Less need for parking space in urban areas
- Study on real network → foundation of discussion on parking management
- Possibility to transform the city into a more beneficial one for citizens

SAV Dispatcher determines the behavior of SAVs in order to (1) pick up requesting travelers and (2) relocate the vehicles to cover future requests.

1. Matching vehicles with requests from travelers
   - For each travel request, search the closest vehicle available
2. Relocating vacant vehicles
   - “Scores” for each area are calculated
   - Move vehicles from over-supplied areas to under-supplied areas

- SOUND (Simulation On Urban road Network with Dynamic route choice)
- Case study on Okinawa Mainland
  → Evaluate parking demand in two scenarios
  - Without SAVs (= current situation)
  - With SAVs

5. Progress & Expected result
- Simulation set-up with SAV Dispatcher is ongoing
- Current parking demand (number of parking space / km²) estimated

6. Future Development
- Implement the SAV Dispatcher into SOUND simulator so as to evaluate the parking demand variation
- Analyze the effect and its relation with network structure & trip demand distribution