Joint CORe – DLR – Tongji Joint Center Of Research for mobility, traffic-safety, and environment

Establishment of a joint research presence with Tongji University in China

Alexander Sohr
Institute of Transportation Systems
DLR-TS in China: From Research to Application

- **Research Projects**
  - Metrasys – LCMM – Optimum – Intersection Monitoring – **Joint CORe**

- **Piloting & Demonstration**
  - METRASYS results in Hefei
  - LCMM in Zhengzhou
  - Equipment - HighTech Zone Hefei, **Shanghai**

- **Application / Financing**
  - ITS – Huainan 2017 - 2019
  - Customer: government and police Huainan

- **Expansion & Extension**
  - GIP2China

Customer locations:
- Hefei (7,6 Mio. pop.)
- Xuancheng (2,5 Mio. pop.)
- Chengdu (14 Mio. pop.)
- Bengbu (3,8 Mio. pop.)
Joint CORe - a BMBF Project between DLR TS & TJU
as result from the long-term cooperation

Objectives:
Set up a joint research center for mobility, with a focus on traffic safety and environment at the Tongji University (TJU) in Shanghai

WP1 - Organization: Project office, Infrastructure, Scientific Advisory Board
WP2 - Setting up of the technical infrastructure: Construction of research intersections and Data platform
WP3 - Establishment of a joint research program: 3 research groups with own programs (traffic safety, transport & environment and traffic control)
WP4 - Education: Guest lectures, seminars and conferences, Student work, bachelor, master thesis and Graduations
WP5 – Utilization: Establishment of joint projects (government & third party funds)
WP6 - Scientific & Technical Networking: National: Shanghai, existing cooperation with Anhui province (e.g., Hefei, Huainan, Beng Bu), International: U.S.A.- New Jersey, Rutgers University, Berlin - DLR Laboratory.
Technical application - Intersection Monitoring System in Shanghai

- Different behavior of traffic participants and outside traffic participants
- Creation of trajectories
- Detection and analysis of incidents
- Turn dependent traffic flows
- Deriving traffic safety parameters
- Combination / data fusion of different detection methods
Technical application - VITAL - Vehicle-Actuated Intelligent Traffic Signal Control

- Signal control related to traffic and environmental concerns
- Model development and simulative Validation (SUMO)
- Field-test in Shanghai
  - Delay-Based Signal Control - usage of measured delay times for signal control
  - Co-operative Signal Control - combination of vehicle-actuated control and GLOSA (Green Light Optimized Speed Advisory)
Joint CORE - project structure

Funded by: Chinese Ministry of Science and Technology (MOST)

„111 Project on Transportation Safety Discipline“
## Erwartete Ergebnisse

<table>
<thead>
<tr>
<th>Phase</th>
<th>Meilensteine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jahr 1</strong></td>
<td>• Arbeitsfähige Strukturen geschaffen</td>
</tr>
<tr>
<td>Aufbauphase</td>
<td>• Forschungsprogramm erstellt</td>
</tr>
<tr>
<td></td>
<td>• Erste Kreuzung aufgebaut</td>
</tr>
<tr>
<td><strong>Jahr 2</strong></td>
<td>• Konzept für Öffentlichkeitsarbeit erstellt</td>
</tr>
<tr>
<td></td>
<td>• zweite Kreuzung aufgebaut</td>
</tr>
<tr>
<td></td>
<td>• Ausbildungskonzept erstellt</td>
</tr>
<tr>
<td><strong>Jahr 3</strong></td>
<td>• internationale Datenschnittstellen zu anderen Forschungslaboren realisiert</td>
</tr>
<tr>
<td>Konsolidierungsphase</td>
<td>• Seminare durchgeführt</td>
</tr>
<tr>
<td><strong>Jahr 4</strong></td>
<td>• Bildung eines Forschungsbeirates</td>
</tr>
<tr>
<td></td>
<td>• Durchgeführte Programmevaluation</td>
</tr>
<tr>
<td><strong>Jahr 5</strong></td>
<td>• Überführung joint core in laufenden Betrieb</td>
</tr>
<tr>
<td></td>
<td>• Konsolidiertes Ausbildungsprogramm bestätigt</td>
</tr>
</tbody>
</table>
Thank You!

Alexander Sohr
German Aerospace Center
Institute of Transportation Systems
Rutherfordstraße 2
12489 Berlin – Germany

phone: +49 (30) 67055 - 458 / 230
mail: alexander.sohr@dlr.de