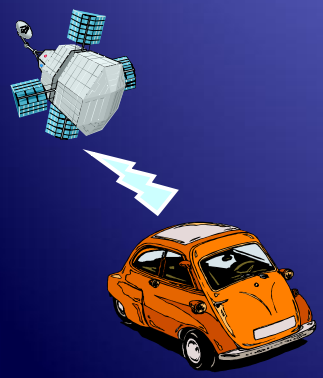
Kickoff Meeting of ICT-PAMM

ITS Lab in Kumamoto University, Japan

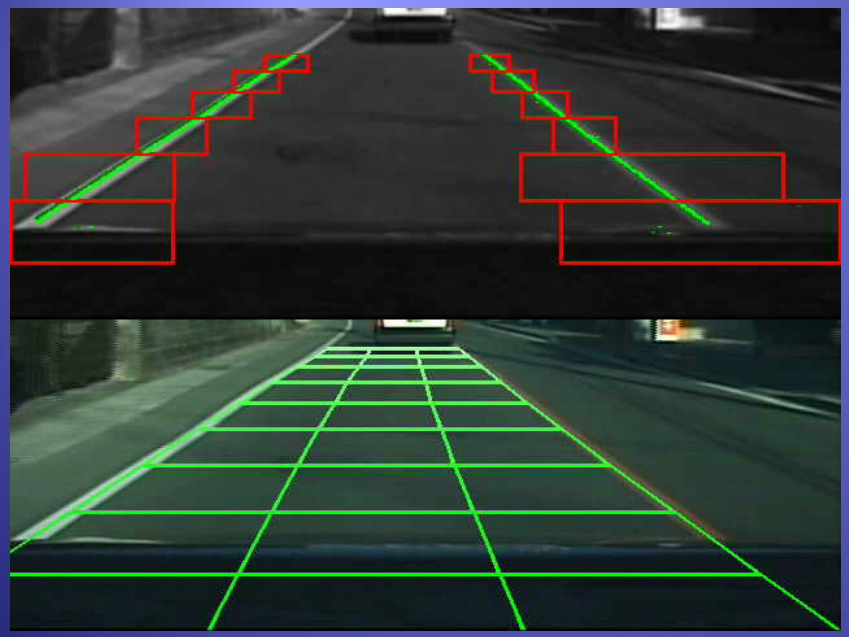
Our Lab: ITS Research Lab

- More than 20 members working on Computer vision based ITS applications
  - Sensing and perception technology for Adaptive Driving Assistance System (ADAS)
  - Driver inattention monitoring system
  - In-vehicle Navigation with new HMI
  - Parking Assistance System
  - Personal EV: new mobility for the elder society
  - Satellite image processing for digital map



Visit us at http://navi.cs.kumamoto-u.ac.jp

Sensing and Perception



Lane detection under extremely difficult conditions

Sensor Fusion on Road

- Stereo vision, Laser radar based Obstacle Detection System for Full Speed Range ACC

Parking Assistance System (PAS)

- Surrounding view and sonar array based PAS

Direct Visual Navigation

- Direct visual information superimposed onto real scene
- Need precise camera registration and HMI technology

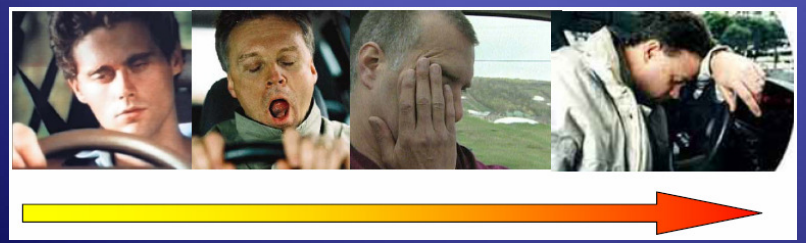
Contributing to ICT-PAMM

- Human centered HMI for new mobile robots
- A practical platform for mobile robots
- Sensing and perception for mobile robots

Driver Inattention Monitoring

Driver Distraction:

Driver Fatigue:



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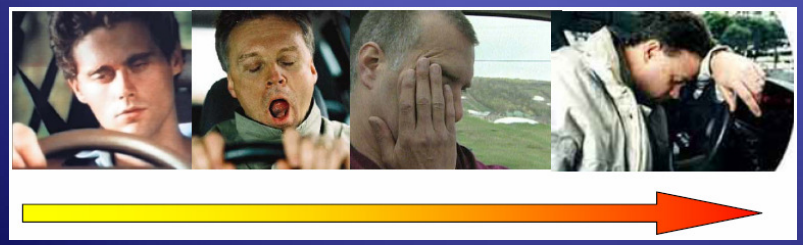
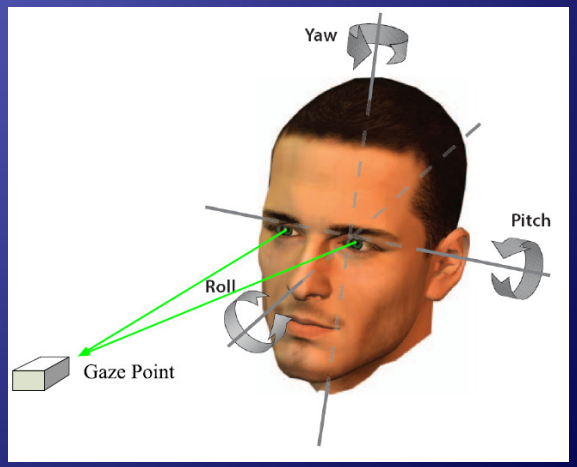


Functional Requirements

- Face Position Estimation
- Face Orientation Estimation
- Face Expression Estimation
- Gaze Estimation



Main Categories

Biological signal processing

EEG EOG ECG sEMG

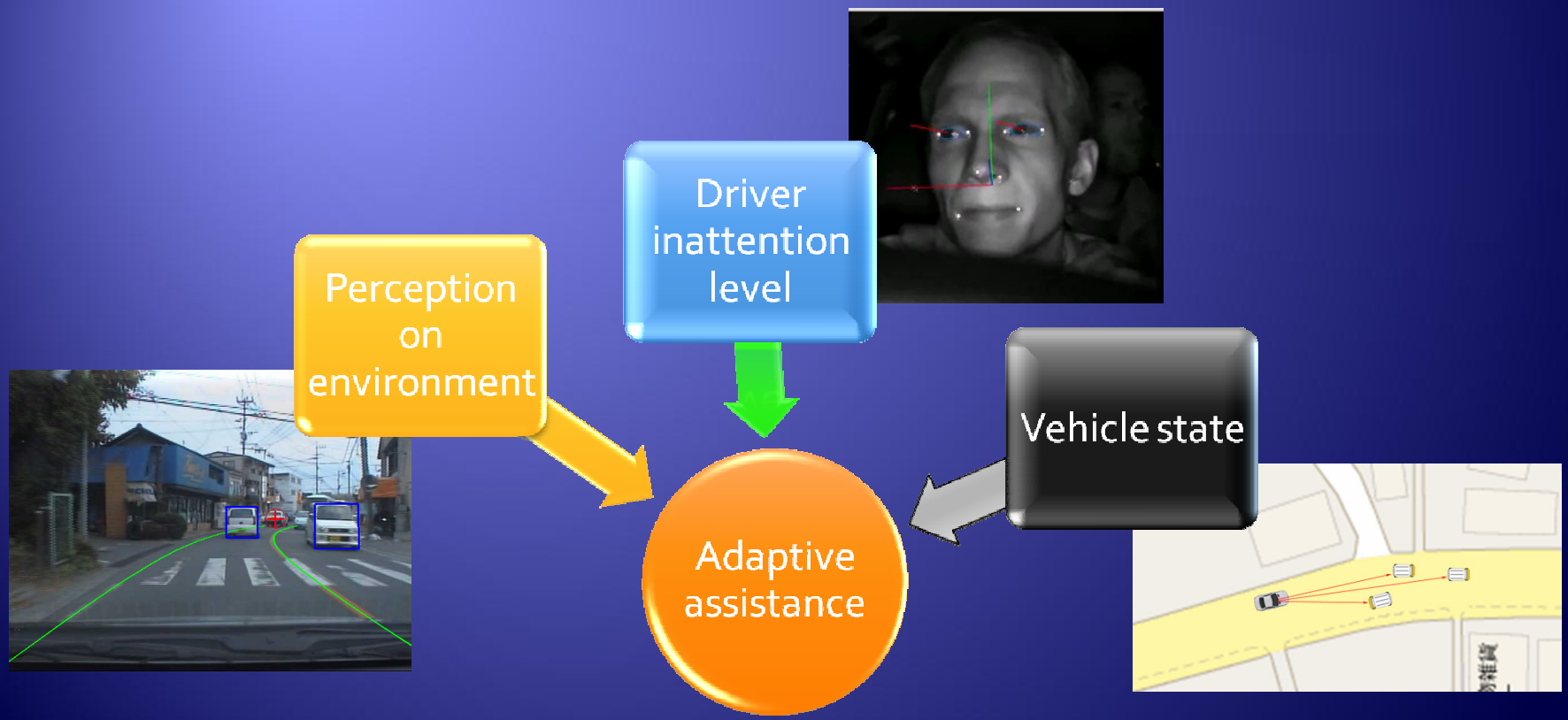
Behaviour analysis

Seat pressure (SP) Steering angle (SA) Pedal signal (PS) Lane position (LP)

Image processing

Human centered HMI

- A comprehensive approach links between environmental perception result and driver inattention level with vehicle states to deliver adaptive assistance to human driver for ADAS



Building a platform: STAVi

Sensing Ability of STAVi

Sensing and perception

- Lidar / visual SLAM
- Pedestrian and obstacle detection and avoidance
- Indoor localization and navigation
- Comprehensive risk analysis

Welcome to Kumamoto, Japan for 2012 annual meeting of ICT-PAMM!

Access to Kumamoto

From Tokyo
- 20 flights daily
- about 1.5 hours flight
- about 6 hours by Shinkansen (high speed train)

From Osaka
- 20 flights daily
- about 1 hours flight
- about 4 hours by Shinkansen (high speed train)

From Fukuoka
- 110 km
- about 40 mins by Shinkansen (high speed train)

Best season in Kumamoto

Spring

Autumn

THANK YOU!