Sensors for Vehicle Automation: Are We There Yet?

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Dr. Ulrich Lages, MBA
CEO
Ibeo Automotive Systems GmbH
Hamburg, Germany
Environment Perception: Are We There Yet?

Google Trike in Bavaria
We will equip every car in this world with Laserscanners and reliable safety applications.

Our contribution to the society will be the saving of a huge amount of lives by doing so.
20 years from the Idea to the Product

- 1995 First Tests with Ibeo Laserscanner
- 1998 Foundation of Ibeo Company
- 2000-2008 Facing the Challenges
  - Development of Laserscanner Technology
  - Several Projects on Autonomous Driving
  - Development of Intersection Safety Assist (funded by the European Commission)
  - Intensive Marketing on Laserscanners
  - Worldwide Sales of Laserscanner Samples
- 2009/10 Management Buy-Out
- 2011 Cooperation Contract with Valeo
- 2014 SOP of Ibeo Scanning Technology

Passion for Scanning
2007 Darpa Challenge – Complete Sensing Concepts

IBEO Darpa Vehicle

Passion for Scanning
12 years of front sensing

VW, Autonomous Driving (1999)
12 years of front sensing

... – Daihatsu – Citroen – Volkswagen – BMW – Mercedes – MAN – Volvo Trucks – ...

Passion for Scanning
12 years of front sensing

INRIA, Cyber Cars (2011)

Y a-t-il un pilote dans la navette?

Passion for Scanning
12 years of front sensing

TOYOTA, Automatic Vehicle (2011)
12 years of side sensing

VW MOTIV (2000)

BMW, Autonomous Driving (2011)

MAN MOTIV (2000)

TOYOTA, Automatic Vehicle (2011)
360 deg FOV – Basic Requirements
360 deg FOV – Basic Requirements

- 140 deg
- 0…200 m range

- 140 deg &
- 0…150 m range
360 deg FOV – Basic Requirements

- 180 deg & 0…20 m range
- 140 deg & 0…200 m range
- 140 deg & 0…150 m range
- 180 deg & 0…20 m range
360 deg FOV – Range Diagram (@10%)

„Scala“:
- SOP 2014 (Valeo)
- FOV: 145 x 3.2 deg
- Range: 30 cm … 200 m
- Resolution: 4 cm / 0.25 deg

„Mini“:
- SOP 2017
- FOV: 180 x 1.0 deg
- Range: 5 cm … 40 m
- Resolution: 4 cm / 1.0 deg
The near Future: 3D High Resolution Sensing

3D
Full Range
High Resolution
All Road User Tracking
Reliable Object Classification
Automatic Landmark Identification
Driver Adaptive Collision Risk Calculation
A small Story at the End

Hey Ulrich, why doesn't Ibeo sponsors the drinks at ITFVHA dinner tonight and Ibeo gives a post card to every participant?

Hey Richard, that's really a great idea! Ibeo will do both...
Your contact at Ibeo Automotive

Dr. Ulrich Lages, MBA
CEO

Ibeo Automotive Systems GmbH
Merkurring 60-62
D-22143 Hamburg

Tel: +49-40-298 676-20
Fax: +49-40-298 676-10
Mob: +49-172-417 3855

Email: Ulrich.Lages@ibeo-as.com