



aDverse wEather eNvironmental Sensing systEm

Fact Sheet

Project Information

DENSE

Grant agreement ID: 692449

[Project website](#) 

DOI

[10.3030/692449](https://doi.org/10.3030/692449) 

Project closed

EC signature date

4 May 2016

Start date

1 June 2016

End date

29 February 2020

Funded under

INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT)

Total cost

€ 14 312 279,65

EU contribution

€ 4 221 232,63

Coordinated by

MERCEDES-BENZ AG



Germany

Objective

Current driver assistance systems are not all-weather capable. They offer comfort and safety in sound environmental conditions. However, in adverse weather conditions where the accident risks are highest they malfunction or even fail. Now that we are progressing towards automated cars and work machines, the requirements of fully reliable environment perception are only accentuated.

The project is focusing on automated driving and its key enabling technology, environment perception. Consequently, project's main objective is to develop and validate an all-weather sensor suit for traffic services, driver assistance and

automated driving. Extended driving environment perception capability with smart, reliable and cost-efficient sensing system is necessary to meet the targets of all future driver assistance system applications. These targets need to be met regardless of location, weather or time of the day. Only by means of reliable and robust sensing system upcoming automated driving will be possible. The new sensor suit is based on a smart integration of three different technologies: (i) Radio radar, 77 GHz-81 GHz, (MIMO Radar); (ii) Gated short wave infrared camera with pulsed laser illumination (SWIR camera) and (iii) Short-wave infrared LIDAR (SWIR Lidar). Such a full fusion approach has never been investigated before, so that the outcome will advance the state-of-the-art significantly and demonstrate the potential of all-weather environment perception.

DENSE innovation lies in the provision of a brilliant restored enriched colour image from a degraded infrared image and consequently, this is followed by a variety of application fields for low cost solutions. An important aim is also to close the gap to US developments in the field and avoid their restrictions for selling components overseas for strategic reasons and strengthen the position of European industry in worldwide competition.

Fields of science (EuroSciVoc)

[engineering and technology](#) > [materials engineering](#) > **[colors](#)**

[engineering and technology](#) > [electrical engineering, electronic engineering, information engineering](#) > [electronic engineering](#) > [sensors](#) > **[optical sensors](#)**

[engineering and technology](#) > [electrical engineering, electronic engineering, information engineering](#) > [information engineering](#) > [telecommunications](#) > [radio technology](#) > **[radar](#)**

[natural sciences](#) > [physical sciences](#) > [optics](#) > [laser physics](#) > **[pulsed lasers](#)**

[natural sciences](#) > [computer and information sciences](#) > [artificial intelligence](#) > **[computational intelligence](#)**



Programme(s)

[H2020-EU.2.1.1. - INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies \(ICT\).](#)

MAIN PROGRAMME

[H2020-EU.2.1.1.7. - ECSEL](#)

Topic(s)

Call for proposal

[H2020-ECSEL-2015-1-RIA-two-stage-Master](#)

[See other projects for this call](#)

Sub call

H2020-ECSEL-2015-1-RIA-two-stage

Funding Scheme

[ECSEL-RIA - ECSEL Research and Innovation Action](#)

Coordinator



MERCEDES-BENZ AG

Net EU contribution

€ 232 111,00

Total cost

€ 928 444,00

Address

MERCEDESSTRASSE 120

70372 Stuttgart

 **Germany** 

Region

Baden-Württemberg > Stuttgart > Stuttgart, Stadtkreis

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Participants (18)



AUTOLIV DEVELOPMENT AB

 Sweden

Net EU contribution

€ 69 379,75

Address

WALLENTINSVAGEN 22

447 83 Vargarda 

Region

Södra Sverige > Västsverige > Västra Götalands län

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 277 519,00



AUTOLIV SVERIGE AB

 Sweden

Net EU contribution

€ 4 927,44

Address

P O BOX 124

447 00 Vargarda 

Region

Södra Sverige > Västsverige > Västra Götalands län

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 19 709,75



VEONEER FRANCE SAS

 France

Net EU contribution

€ 187 506,25

Address

BOULEVARD LENINE, BP 506
76800 Saint-Etienne-Du-Rouvray 

Region

Normandie > Haute-Normandie > Seine-Maritime

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 750 025,00



CENTRE D ETUDES ET D EXPERTISE SUR LES RISQUES L ENVIRONNEMENT LA MOBILITE ET L AMENAGEMENT

 France

Net EU contribution

€ 400 614,42

Address

25 AV FRANCOIS MITTERRAND
69500 Bron 

Region

Auvergne-Rhône-Alpes > Rhône-Alpes > Rhône

Activity type

Public bodies (excluding Research Organisations and Secondary or Higher Education Establishments)

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 1 001 536,06



HITACHI EUROPE GMBH

 Germany

Net EU contribution

€ 65 000,00

Address

AM SEESTERN 18

40547 DUSSELDORF 

Region

Nordrhein-Westfalen > Düsseldorf > Düsseldorf, Kreisfreie Stadt

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 525 937,50

 THIRD-PARTY

HITACHI EUROPE SAS

 France

Net EU contribution

€ 66 484,38

Address

21 RUE CAMILLE DESMOULINS

92130 Issy Les Moulineaux 

Region

Ile-de-France > Ile-de-France > Hauts-de-Seine

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

- Contact the organisation
- Participation in EU R&I programmes
- HORIZON collaboration network

Total cost

€ 265 937,50



IBEO AUTOMOTIVE SYSTEMS GMBH

Germany

Net EU contribution

€ 218 754,70

Address

MERKURRING 60-62
22143 Hamburg

SME

Yes

Region

Hamburg > Hamburg > Hamburg

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

- Contact the organisation
- Website
- Participation in EU R&I programmes
- HORIZON collaboration network

Total cost

€ 729 182,34



INNOLUCE BV

Netherlands

Net EU contribution

€ 283 125,00

Address

KERKENBOS 1234, UNIT C
6546BE Nijmegen 

SME 

Yes

Region

Oost-Nederland > Gelderland > Arnhem/Nijmegen

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 943 750,00



MODULIGHT OYJ

 Finland

Net EU contribution

€ 173 025,00

Address

HERMIANKATU 22
33720 Tampere 

SME 

Yes

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 576 750,00



OPLATEK GROUP OY

 Finland

Net EU contribution

€ 45 000,00

Address

KOKOOJANTJE 5

79100 LEPPAVIRTA 

SME 

Yes

Region

Manner-Suomi > Pohjois- ja Itä-Suomi > Pohjois-Savo

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 150 000,00



RENAULT SAS

 France

Net EU contribution

€ 115 312,50

Address

122-122B AVENUE DU GENERAL LECLERC

92100 Boulogne Billancourt 

Region

Ile-de-France > Ile-de-France > Hauts-de-Seine

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 461 250,00



TAMPEREEN KORKEAKOULUSAATIO SR

 Finland

Net EU contribution

€ 95 000,00

Address

KALEVANTIE 4

33100 Tampere 

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 237 500,00



UNIVERSITAET ULM

 Germany

Net EU contribution

€ 306 710,00

Address

HELMHOLTZSTRASSE 16

89081 Ulm 

Region

Baden-Württemberg > Tübingen > Ulm, Stadtkreis

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 766 775,00



VAISALA OYJ

Finland

Net EU contribution

€ 145 312,50

Address

VANHA NURMIJARVENTIE 21

01670 Vantaa

Region

Manner-Suomi > Helsinki-Uusimaa > Helsinki-Uusimaa

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) [Website](#)

[Participation in EU R&I programmes](#)

[HORIZON collaboration network](#)

Total cost

€ 581 250,00



TEKNOLOGIAN TUTKIMUSKESKUS VTT OY

Finland

Net EU contribution

€ 339 369,50

Address

TEKNIIKANTIE 21

02150 Espoo

Region

Manner-Suomi > Helsinki-Uusimaa > Helsinki-Uusimaa

Activity type

Research Organisations

Links

[Contact the organisation](#) [Website](#)

[Participation in EU R&I programmes](#)

[HORIZON collaboration network](#)

Total cost

€ 848 423,75



XENICS NV

 Belgium

Net EU contribution

€ 570 260,25

Address

AMBACHTENLAAN 44

3001 Leuven 

SME 

Yes

Region

Vlaams Gewest > Prov. Vlaams-Brabant > Arr. Leuven

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 1 900 867,50



MAGNA ELECTRONICS SWEDEN AB

 Sweden

Net EU contribution

€ 90 116,31

Address

WALLENTINSVAGEN 22

447 37 Vargarda 

Region

Södra Sverige > Västsverige > Västra Götalands län

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 360 465,25



MERCEDES-BENZ GROUP AG 

 Germany

Net EU contribution

€ 813 223,63

Address

MERCEDESSTRASSE 120

70372 Stuttgart 

Region

Baden-Württemberg > Stuttgart > Stuttgart, Stadtkreis

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 3 252 894,50

Last update: 18 August 2022

Permalink: <https://cordis.europa.eu/project/id/692449>

European Union, 2025