Project Information

ELIOT

Grant agreement ID: 825651

DOI
10.3030/825651

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

Total cost
€ 7 313 322

EU contribution
€ 5 991 026

Coordinated by
FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV
Germany

Project description

Here comes LiFi for the Internet of Things

The data rate, reliability and latency of wireless connections will be stressed by increasing the number of devices communicating at higher speed in the Internet of Things (IoT). If many IoT devices communicate in a confined space, the demand for wireless spectrum will increase faster than expected for current internet services. The EU-funded ELIOT project, a 10-partner, 36-month project led by the Fraunhofer Heinrich Hertz Institute, will develop mass market solutions for the IoT using LiFi, a
next generation wireless communication network, travelling over light instead of radio waves. With LiFi, the ELIOT consortium develops a new networked mobile communication technology operating in the previously unused light spectrum, into which IoT traffic can be offloaded from Wi-Fi and cellular radio.

**Objective**

So far, the Internet of Things (IoT) is narrowband with no latency constraints. A wider range of applications is envisioned for industrial manufacturing, augmented reality and autonomous cars. It makes use of artificial intelligence, where compute functions will be offloaded from devices into the cloud. Accordingly, future IoT will need wireless links with high data rates, low latency and reliable connectivity despite the limited radio spectrum. Connected lighting is an interesting infrastructure for IoT services because it enables visible light communication (VLC), i.e. a wireless communication using unlicensed light spectrum. LED luminaires have enough modulation bandwidth for high data rates and each luminaire can be used as a wireless access point. Networked VLC-enhanced luminaires will add new features to build a wireless network for the IoT. ELIOT will start from existing prototypes and develop the support for IoT services. The project will integrate the lighting infrastructure with VLC and add positioning, multicast communications and enhanced security. ELIOT will demonstrate the new infrastructure in real environments at TRL ≥ 6 and mobile IoT devices at TRL ≥ 4. Main project goals are to provide an open reference architecture for the support of IoT in the lighting infrastructure, build consensus reflecting the best architectural choices, contribute to standardization of lighting and telecom infrastructures in IEC, IETF, IEEE and ITU-T and provide a roadmap for IoT until 2022 and beyond. ELIOT brings together Europe’s key players that cover the whole value chain, i.e. OSRAM, Philips Lighting and Tridonic as major component and luminaire makers, Maxlinear as chipmaker, NOKIA as a leading network vendor and integrator, BMW, Weidmüller and Thyssen Krupp working on industrial IoT, Deutsche Telekom and KPN as innovative operators, together with Fraunhofer HHI as a leading research institute and two top universities from Eindhoven and Oxford.

**Fields of science**

natural sciences › computer and information sciences › artificial intelligence
engineering and technology › mechanical engineering › vehicle engineering › automotive engineering › autonomous vehicles
natural sciences › computer and information sciences › internet › internet of things
engineering and technology › electrical engineering, electronic engineering, information engineering › information engineering › telecommunications › radio technology
Programme(s)

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

Topic(s)

ICT-04-2018 - Photonics based manufacturing, access to photonics, datacom photonics and connected lighting

Call for proposal

H2020-ICT-2018-20

See other projects for this call

Sub call

H2020-ICT-2018-2

Funding Scheme

IA - Innovation action

Coordinator

FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV

Net EU contribution

€ 1 541 655,75

Address

Hansastrasse 27c
80686 München

Region

Bayern > Oberbayern > München, Kreisfreie Stadt

Activity type

Research Organisations
Participants (10)

THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

United Kingdom

Net EU contribution
€ 458 078,75

Address
Wellington Square University Offices
OX1 2JD Oxford

Region
South East (England) > Berkshire, Buckinghamshire and Oxfordshire > Oxfordshire

Activity type
Higher or Secondary Education Establishments

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

Other funding
€ 0,00

TECHNISCHE UNIVERSITEIT EINDHOVEN

Netherlands

Net EU contribution
€ 905 937,00

Address
Groene Loper 3
5612 AE Eindhoven

Region
Noord-Brabant > Zuidoost-Noord-Brabant

Activity type
Higher or Secondary Education Establishments

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

Other funding
€ 0,50

KONINKLIJKE KPN NV

Netherlands
Net EU contribution
€ 311 500,00

Address
Wihelminakade 123
3072 AP Rotterdam

Region
West-Nederland > Zuid-Holland > Groot-Rijnmond

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

Other funding
€ 133 500,00

DEUTSCHE TELEKOM AG

Germany
Net EU contribution
€ 320 792,50

Address
### Friedrich-ebert-allee 140

**Address:**
Friedrich-ebert-allee 140  
53113 Bonn

**Region:**
Nordrhein-Westfalen > Köln > Bonn, Kreisfreie Stadt

**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

**Other funding:**
€ 137 482,50

### MAXLINEAR HISPANIA SL

**Country:** Spain

**Address:**
C/ Narcis Monturiol i Esterriol 11  
28020 Paterna Valencia

**Region:**
Comunidad de Madrid > Comunidad de Madrid > Madrid

**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

**Other funding:**
€ 178 125,00

### LIGHTBEE SL

**Country:** Spain

**Address:**

**Region:**

**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

**Other funding:**
€ 223 125,00
**WEIDMULLER INTERFACE GMBH & CO KG**

*Germany*

Net EU contribution

€ 363 475,00

**Address**

Klingenbergstrasse 16
32756 Detmold

**Region**

Nordrhein-Westfalen > Detmold > Lippe

**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

**Other funding**

€ 155 775,00

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**BAYERISCHE MOTOREN WERKE AKTIENGESELLSCHAFT**

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BAYERISCHE MOTOREN WERKE AKTIENGESELLSCHAFT

Address
Petuelring 130
80809 München

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

Other funding
€ 0,00

NOKIA SOLUTIONS AND NETWORKS GMBH &CO KG

Address
Werinherstrasse 91
81541 München

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

Other funding
€ 77 438,00

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SIGNIFY NETHERLANDS BV

Netherlands

Net EU contribution

€ 1 270 150,00

Address

High Tech Campus 45
5656 AE Eindhoven

Region

Noord-Brabant > Zuidoost-Noord-Brabant

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

Other funding

€ 544 350,00

EC signature date: 14 December 2018
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