A fully automatic method and apparatus for economical and long-lasting patching of potholes

From 2014-10-01 to 2016-09-30, closed project

Objective

Pothole repair in road networks is one of the most commonly performed operation for most road maintenance teams, especially in areas where cold winters and wet springs contribute to accelerated road surface breakup every year. The poor condition and lack of maintenance of European roads contribute to at least one third of all accidents each year, and accounting to 52.7% of fatalities in 2011. Potholes also hold the distinction of being the most aggravating road distress to the traveling public in general.

Pothole repair generally accounts for a significant portion of transportation departments’ operating budget, with more than €1.2 billion being directly attributed to fill nearly 20 million potholes in Europe during 2011, but only half of Europe’s potholes were treated. This can be attributed to the high initial costs associated with maintenance activities, the historically poor performance of patching which often necessitates additional maintenance work, and the exorbitant safety and legal costs associated with the need for traffic control of these activities. As such, any improvements or advancements in this area could result in substantial cost savings.

As a response to this need, a pothole repair method that will significantly reduce the direct costs (cost of repair) and indirect costs (cost of user compensation, traffic disrupts, etc.) associated with road maintenance activities is required. Specifically, increased effectiveness and better productivity during pothole repair and enhanced longevity of potholes use are required.

The proposed solution is to develop a fully automatic, via robotic vision and computer-control, and adaptive, via an expert system, pothole repair system with integrated quality assurance mechanisms, as well as a new, robust patch material blend - an emulsified asphalt emulsion - that lend itself to the automatic process and demonstrates excellent performance.

Related information

Report Summaries

Final Report Summary - HOLEINONE (A fully automatic method and apparatus for economical and long-lasting patching of potholes)

Periodic Report Summary 1 - HOLEINONE (A fully automatic method and apparatus for economical and long-lasting patching of potholes)
Coordinator
THE UK INTELLIGENT SYSTEMS RESEARCH INSTITUTE LIMITED
PERA BUSINESS PARK NOTTINGHAM ROAD
LE13 0PB MELTON MOWBRAY
United Kingdom

EU contribution: EUR 47 600

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
Administrative contact: Paul Tattersall
Tel.: +44 1664501501
Contact the organisation

Participants

INSTARMAC GROUP PLC
DANNY MORSON WAY BIRCH COPPICE BUSINESS PARK DORDON
B78 1SE TAMWORTH StaffORDSHIRE
United Kingdom

EU contribution: EUR 322

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
Administrative contact: Tim Boniface
Tel.: +44 1827872244
Contact the organisation

ECOASFALT SA
AVENIDA DE LA CARRERA 3-2 PLANTA
28223 POZUELO DE ALARCON MADRID
Spain

EU contribution: EUR 278

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
Administrative contact: Ernesto Mencia
Tel.: +34 618258450
Fax: +34 917810576
Contact the organisation

MUG MUHENDISLIK SURDURULEBILIR KALKINMA PROJE VE DANISMANLIK HIZMETLERİ SANAYI VE TICARET LTD STİ SANAYİSUBESİ
İVEDIK OSB OZANADOLU SANAYİ SİTESİ
06530 ANKARA
Turkey

EU contribution: EUR 206

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
Administrative contact: Can Akar
Tel.: +90 3122101813
Contact the organisation
HISBİM HISARLAR BILGI VE İNOVASYON MERKEZI SANAYİ VE TİCARET ANONİM SİRKETİ
TEKNOPARK YAZILIM KULE KAT 2 ORGANIZE SANAYİ BOLGESİ TEKNOLOJİ GELİSTİRME
BOLGESİ
26110 ESKİŞEHİR
Turkey
See on map

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

**Administrative contact:** Taskin Kızıl
Tel.: +90 2222362194
Contact the organisation

INNORA PROIGMENA TECHNOLOGIKA SYSTIMATA KAI YPIRESIES AE
IOANNÖY METAXA 59
19400 KOROPI ATTİKIS
Greece
See on map

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

**Administrative contact:** Panos Chatzakos
Tel.: +30 2106526411
Fax: +30 2106526419
Contact the organisation

ACCIONA CONSTRUCCION SA
AVENIDA DE EUROPA 18 PARQUE EMPRESARIAL
28108 ALCOBENDAS
Spain
See on map

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

**Administrative contact:** Miguel Angel Paris Torres
Tel.: +34 917912020
Fax: +34917912001
Contact the organisation

**Subjects**

Regional Development

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