



INTERNATIONAL OPERATIONS & MAINTENANCE CONFERENCE
IN THE ARAB COUNTRIES

UNDER THE THEME

"MANAGING MAINTENANCE WITHIN INDUSTRY 4.0"

CONICIDE WITH THE 16TH ARAB MAINTENANCE EXHIBITION

E-Rain Smart Storm Water Inlets Gate The GREEN MANAGEMENT for Smart Cities Roads Drain Rain System

Khaled Abdul Hamid Elnems

4.0



Introduction



The Smart infrastructure Cities and Sustainable Regions by exploits innovative regional development concepts, the key to which is the integrate Electronic control and data transfer e-civil engineering to become a civil works more accuracy, control and abundant data and information. To extent of turning the concept of maintenance and operation of infrastructure through the normal civil works to work of a civil electronically controlled. It is new Engineering Technology called (Civilelectronics)

This Technology for Electronically Control of Civil Works to improvement the Infrastructure Maintenance and Operation (Storm water O&M) and increase protectively, accurate result and better quality of life, being environmentally friendly (Green Management).: Recognizes a venture of green management, method that add valuable experience for saving environment and ecosystem

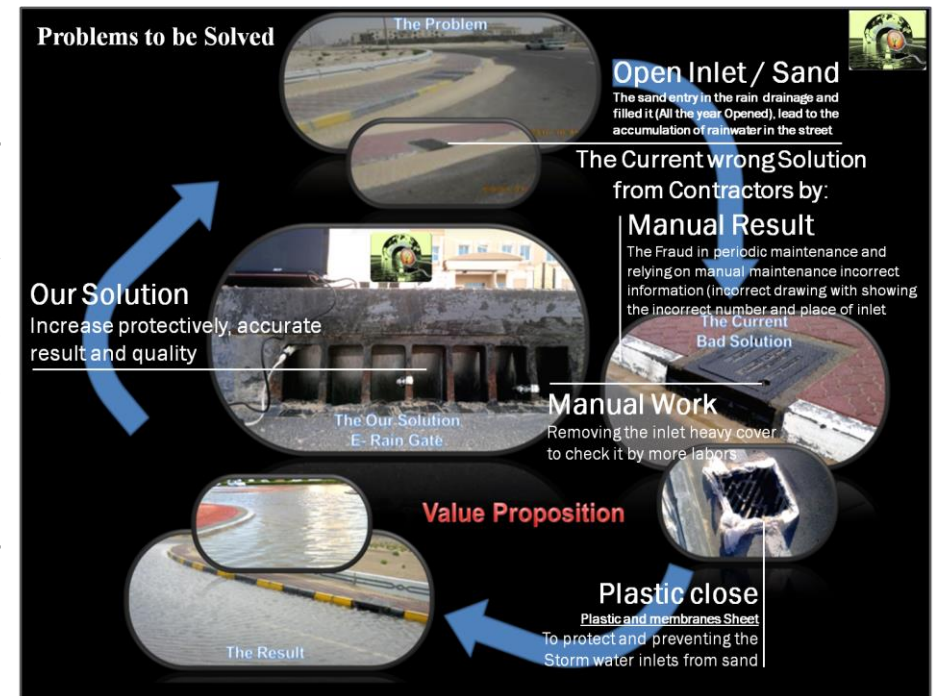
This integrative approach is of vital importance for success and the simultaneous creation of socioeconomic and ecological sustainability

We Deliver Innovative Solutions for Complex Storm Water Problems and flooding on the roads and the Role of Environmental Technology Invention in Smart infrastructure Cities (Green Management Invention):

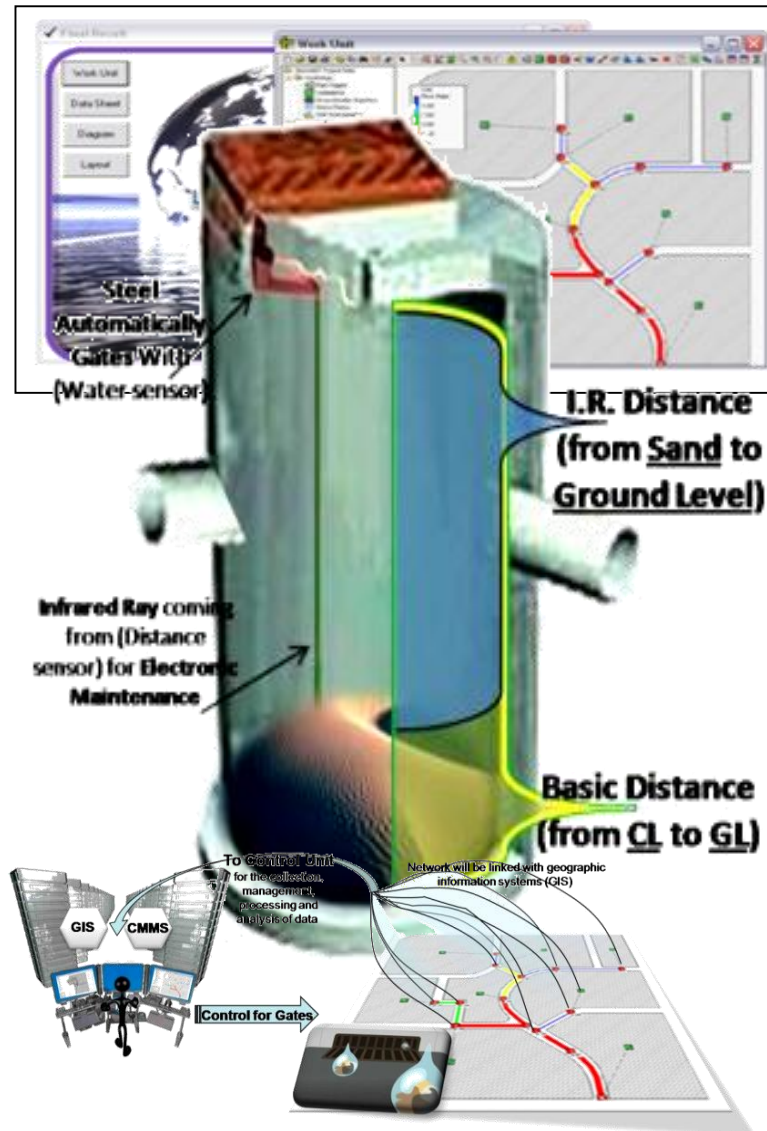
Reasons & Beneficiary



- This New Technology is particularly useful in tropical countries where torrential rains are common, or desert countries where wind distributes a sand before rains (Gulf countries), where it reduces the risk of environmental damage by floods
 - To Protecting the public from the (hindering traffic, Accidents, flooding & Sliding asphalt).
- Perfect result With saving more than 60% from normal maintenance cost to Government as paid a lot of payment for O&M storm water Inlet without 100% perfect result to leads the rainwater accumulating on the street, to pay only for storm water inlet which selected it which must need for Maintenance) Without direct human intervention by the electronically maintenance work by measuring the percentage of sand in the storm water Inlet inside and Prevent the entry of sand in the storm water drainage
- To avoid The Fraud in periodic maintenance and relying on manual maintenance incorrect information (incorrect drawing with showing the incorrect number and place of inlet in the storm water Inlet leads to accumulating of rainwater in the street and flood.



Method & Benefit



It is New Innovation Without direct human intervention and by creates smart gates for storm water inlets that are sensitive to rain (open and close) automatically when required to restrict sand from flooding these inlets during or before rain. With feature of electronic maintenance which checks the sand level or percentage in the inlets eliminating the chance of lengthy the manual labour or faulty assessment of these inlets. But overall, there are many more advantages to E-Rain Gate than just its practical use:

- 1) It stops sand and other elements from blocking the inlets which lead to flooding on the streets.
- 2) It reduces manual labor and mistakes when it comes to maintenance of these Inlets.
- 3) It leads to a smart way of road management, where regular checks can be made with just the click of a mouse.

Application & Support



- **Patented:** (Hard & Software) Registered Patent No.:2011/ 514 (Egyptian Patent Office)) and Patent Software No.: 001936/ 2012 (The Egyptian Ministry of Communications and Information Technology -Patent Office) ITIDA
- **Fund:** Cash Award support: The Third prize (50 000kronor=8000\$) from The Swedish Inventors' Association, (Foundation Agne Johansson's) in The International Inventors Award on Oct. 2011 in (Sweden Invention SIF125)
- **Applied Real Prototype:** into one of a rainwater drainage exit to show the effectiveness of the device in U.A.E., Abu Dhabi (Shakhbout City) 2012
- **Developed a Prototype:** under Abu Dhabi Technology Development Committee (INNOVATOR) 2014



Popularization & Cooperation



E- RAIN GATES

**AUTOMATICALLY SMART GATES FOR STORM WATER INLETS
WITH ELECTRONIC MAINTENANCE**

We Deliver Innovative Solutions For Complex Storm Water Problems

Web Site: www.e-rain-gate.wixsite.com/e-rain-gate

- **Cooperation:** (application and implementation) with a lot of Department: •The Swedish Inventors' Association Foundation/•Masdar Company/•Dubai Technology Entrepreneurship Centre/•Egyptian Engineering Authority of the Armed Forces
- **Establish:** Web Site and Social media pages
- Proved the Social Acceptability of this Proposal by taken International Awards and good examples of practice from a lot of International Innovations conferences & Exhibitions
- **Popularization:** Development our project work by (Polyvinyl Alcohol (PVA) Material) to improve and Cost less to be have a multiple solutions to keep up with all the slides Governments (from the Rich government up to Low government)

Video of Project

