(CIVILECTRONICS) THE ELECTRONICALLY CONTROL OF CIVIL WORKS FOR INFRASTRUCTURE (O&M) (GREEN MANAGEMENT)

Automatically Smart Gates for Storm Water Inlets with Electronic Maintenance

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Abstract

The world is witnessing rapid developments in information and technologies different, it has become of electronic systems a strong influence and direct the knowledge society, where control of the individual and society, which uses information technology tools and communication technologies that allow the building of knowledge, control, increase protectively, accurate result and quality of life, being environmentally friendly (Green Management), and a giant of the technology as we know is the computer and covered by the programs and the characteristics of Informatics. The Computer & Computer Program can playing big roles in our lives, But it can be used for a lot of benefits work to controlling, Admin our Life and save money, by using the Computer Program

Keywords: *New Invented Engineering Category (Civilectronics) (Green Management), New Innovation and Control by O&M Computer Programming for O&M Works, New methods and tools to Maintenance engineering for sustainability, Infrastructures Continuous Maintenance and Monitoring, Smart Applications Asset Management Smart Cities.*

1 Introduction

The Computer & Computer Program can play big roles in our live, And it can be used for a lot of benefits work to control and Admin our life and saving money by providing the electronic chips and using the Computer Programs (Because we have a lot of devices the Computer can control it without more expansive electronic chips led to increase devices price) also save us from fraud (by manual incorrect information or documents, drawings, etc).

Hence, we want to convey a message (the computer is a double edged sword) and it is better for us to use good face for the computer with programs in our lives and in the field of new innovations.

In this regard I will explain one of my innovation in field of maintenance and operation to show how important the role of computer programs and networks in the community and our lives, and to highlight the role of information technology and networking programs in the transition to a knowledge society through employment and the application of information technology and connect them with geographic information systems (GIS) – (CMMS), so that can follow up and control by networks control:

An invention enters the system electronic control in the civil works and could be called a (Civilectronics) and its definition simply is to integrate control and data transfer e- civil engineering to become a civil works more accuracy, control and abundant data and information. This invention can build a new concept (New Category) on extent of turning the concept of maintenance and operation of infrastructure through the normal civil works to work of a civil electronically controlled.

General Meaning for (Civilectronics) is the combination of Civil engineering, Electronic engineering, Computer engineering, Control engineering and Systems Design engineering in order to the Electronically Control of Civil Works for Infrastructure Maintenance and Operation (My New Invented Category)

(Civilectronics) just included the combination between Civil (Infrastructure O&M) and electronics; hence the word is only a portmanteau of Civil and electronics.

Here, I will explain my New Innovation to prove the roles of Computer Program in our live and how it will control a lot of engineering fields to improvement the Infrastructure Maintenance and Operation (Storm water O&M) and increase protectively, accurate result and quality of life, being environmentally friendly (Green Management).

2 New Innovation Title and Registration:

Title: "Automatically Gates for Storm water Inlets with E-Maintenance", (Registered Patent No.: 2011/ 514 (Egyptian Patent Office)). & Patent Software No.: 001936/ 2012 (The Egyptian Ministry of Communications and Information Technology -Patent Office) ITIDA

2.1 Description: General idea of what the invention is about:

It is an automatically Gates for Storm water Inlets (Open & Close) on rain time by (Water sensor) to Prevent the entry of sand in the drainage of rain or filled in it, leading to the accumulation of rainwater in the street outside the storm water Inlet (see Fig. 1).

With Electronic Maintenance by (Distance sensor) to clarify the proportion of the amount of sand inside the inlets without (removing the inlet cover or check it or more labors, etc.) Or any difficulties in work (see Fig. 2).

The invention is particularly useful in tropical countries where torrential rains are common, or desert countries where wind distributed a sand before rains (Gulf countries), where it reduces the risk of environmental damage by floods.

2.2 Presentation: It is Describe how the invention works, looks like

- General: They are Gates with Sensors fixed inside storm water inlet on entrance water and there is small place for socket to fix the USB Connection with the computer when they do the Electronic Maintenance (see Fig. 1).
- Steel Automatically Gates for Storm water Inlets (Open & Close) on rain time by (Water sensor) to prevent the entry of sand in the rain drainage or filled in it, leading to the accumulation of rainwater in the street outside the storm water Inlet (see Fig. 1).
- Electronic Maintenance by (Distance sensor) to clarify the proportion of the amount of sand inside the inlets without (removing the inlet cover or check it or more labors, etc.) Or any difficulties work with showing the percentage of sand in the number and place of inlet with time maintenance checking in the storm water Inlet electronically on (Electronic drawing print end of the work day) from the computer program
- USB Connection (PIC): it is function is recharging the small battery for motor with giving order to working and connecting between (Computer program) and (Distance sensor) because inside this USB Connection (Microcontroller) and it is responsible of taking order from program to distance sensor to working after that takes the data information from Distance sensor and transfer it to the program to show the percentage of sand inside the inlet (Fig. 2).
- Computer Program for Electronic Maintenance: It is program for processing the data information and showing it in preset drawings and data information inlets (see Fig. 2).
- Additional option: The propose to add the Bluetooth Technology into Device gates is to connect the Laptop computer with Device gates by Bluetooth (without disembarking from the car) it is mean not necessary to use the USB Connection only if shall need Charger battery or maintenance

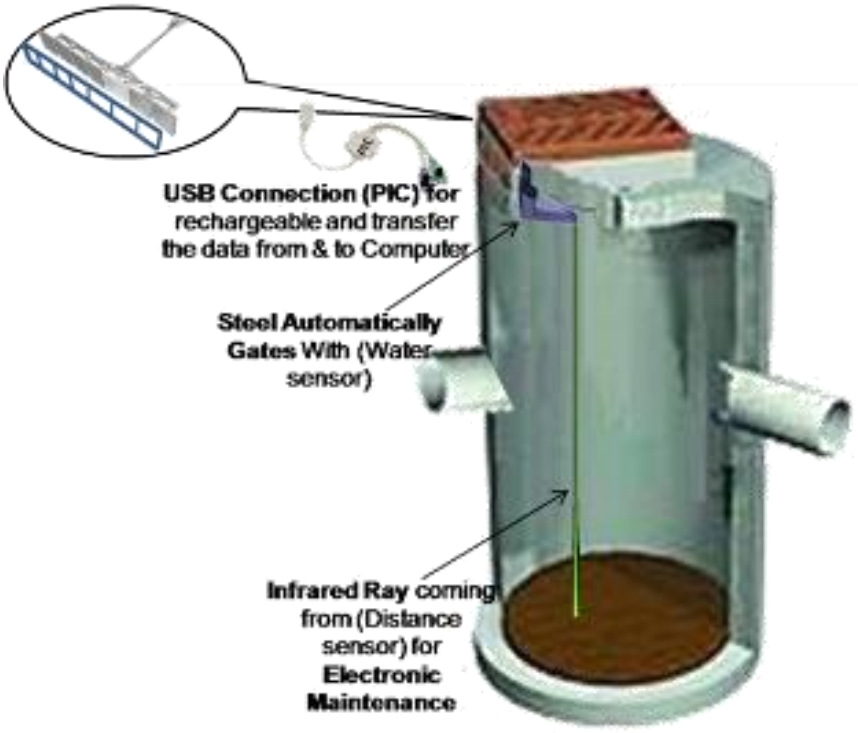


Fig. 1. Device Structure

2.3 The Role of Software: It is Describe how the software works:

- It is checking and trying the automatically Gates with sensors are working and recharging the small battery of the motor (Electronic Maintenance).
- It is giving order for the (Distance sensor) to work and clarify the proportion of the amount of sand inside the inlets and showing the percentage of sand in the number and place of inlet with time maintenance check in the storm water Inlet electronically on drawing program (Without any manual deception using drawing) (see Fig. 2).
- It is repeating automatically alarm if after checked the inlet and found more sand that haven't removed, this alarm can stop only after the program get checked again by the (Distance sensor) and there is no more sand inside the inlet.

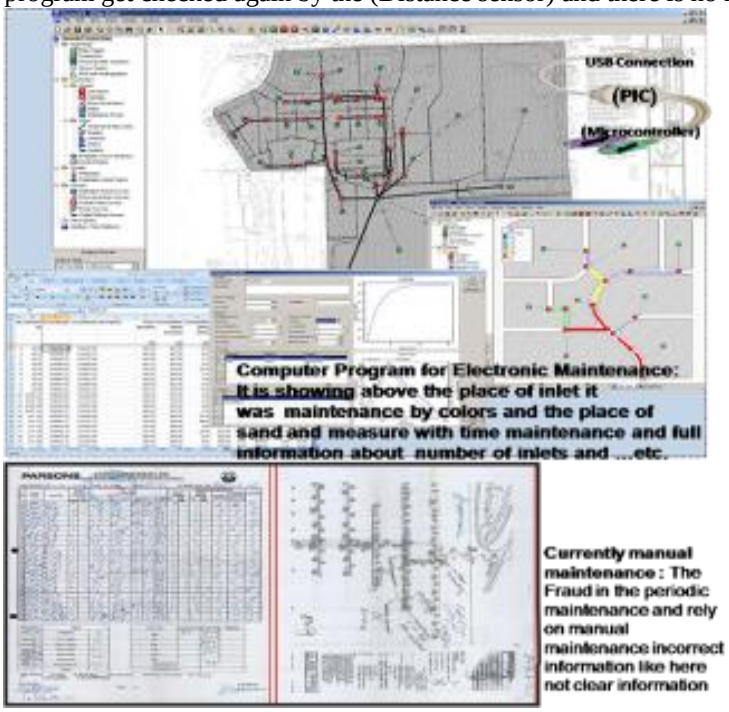


Fig. 2. Comparison

2.4 The Problems that Innovation will to solve:

- The sand entry in the drainage of rain or filled in it, lead to the accumulation of rainwater in the street outside the storm water Inlet (see Fig. 3).
- 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 then lead to flood .
- It can be solve by the electronically maintenance work by measuring the percentage of sand in the storm water Inlet inside (electronically).

Fig. 3. Photos

2.5 Invention Recruitment in the field of networks to development:

Applying this invention in the field of networks and their use in development:
This invention provide a process of developmental (second phase) so that it will be the work of network connection between the gates together and Control Unit, aim of the network is to transfer data and control the gates of the control rooms compound for the collection, management, processing and analysis of data where you can: lock or open the gates by hand when emergencies like (Flood Water Sewerage - The gates are locked to prevent entry of contaminated water and access to the sea to pollute the environment), but naturally they operate automatically.

It can also be controlled by control unit electronically rather than manually as it is in the example above when Flood Water sewage are electronically (Control Unit) contact with the (Console Meteorology) to know the times of rainfall and if proves that there is no rain in this time, the control unit automatically begin to lock the gates and abolition of order from this sensor gates which is need to open because presence of water, and contact with the emergency team to inform them of important gates that must be investigated (see Fig. 4).

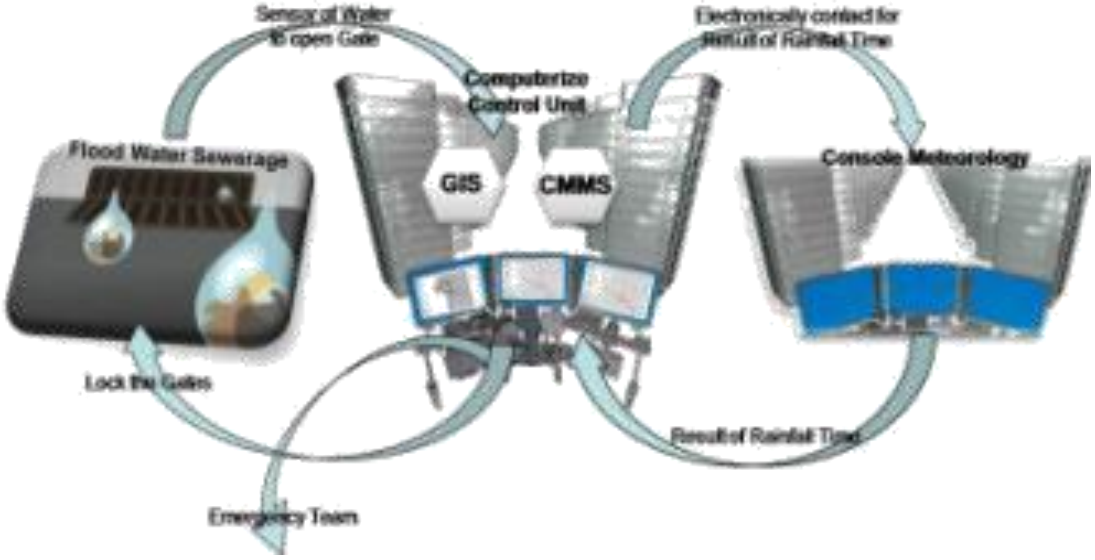


Fig. 4. Illustration

Comes the primary role of this network will be linked with geographic information systems (GIS) to facilitate the data processing from the gates and showing the status of assets to be maintained giving an order for maintenance of the Center for Treating and calculating only the number of (S. W. Inlets) preserved and which must be maintain and position this process as follows: gates - Systems Geographic information - maintenance management and maintenance management systems on the computer (Fig. 5)

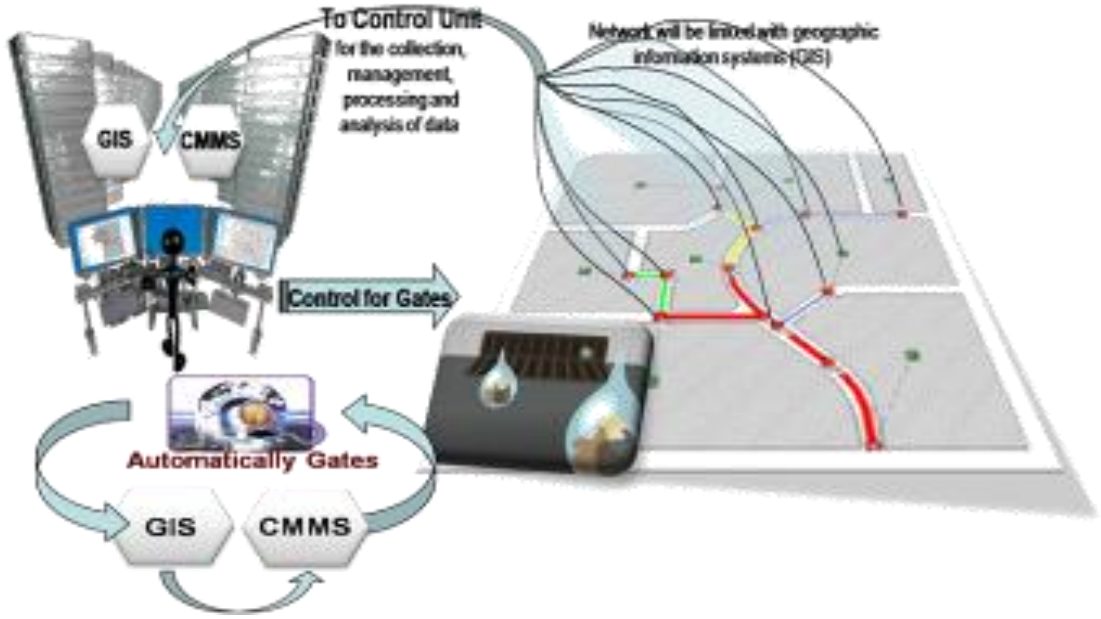


Fig. 5. Illustration

3 Invention Advantages (Fig. 6):

3.1 General Advantages:

- Preventing the entry of sand in the drainage of rain or filled in it, leads to the accumulation of rainwater in the street outside the storm water Inlet.
- Saving time and effort for the workers by (Electronically Maintenance work) by measuring the percentages of sand in the storm water Inlet inside without (removing the inlet cover or check it or using more labors, etc) (electronically).
- Electronic drawing print end of the work day shows the percentage of sand in the number and place of inlet with time maintenance check in the storm water Inlet without fraud in the periodic maintenance and rely on manual maintenance incorrect information.
- Safe for the Terrorist Operations or miss anything into these inlets, because it is open all the time.

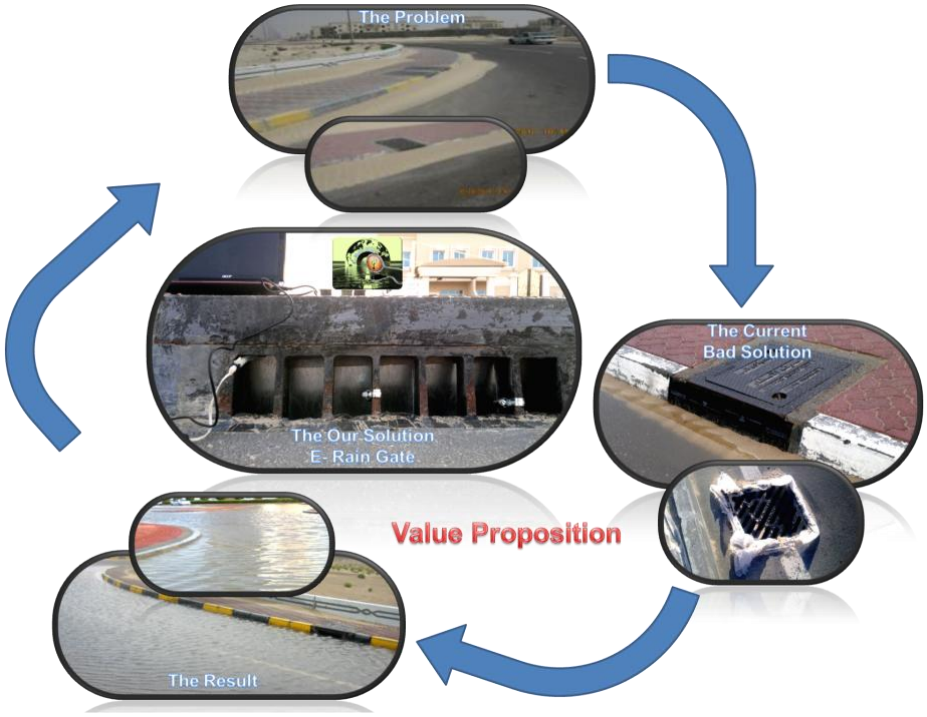


Fig. 6. The Value Proposition

3.2 The Environmental Technology Invention Advantages (Green Management Invention)

- This invention 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.
- By Applying this invention with (networks and Control Unit): so that it will be the work of network connection between the gates together and Control Unit, aim of the network is to transfer data and control the gates of the control rooms compound for the collection, management, processing and analysis of data where you can: lock or open the gates by hand when emergencies like (Flood Water Sewerage - The gates are locked to prevent entry of contaminated water and access to the sea to pollute the environment), but naturally they operate automatically.
- It can also be controlled by control unit electronically rather than manually as it is in the example above when Flood Water sewage are electronically (Control Unit) contact with the (Console Meteorology) to know the times of rainfall and if proves that there is no rain in this time, the control unit automatically begin to lock the gates and abolition of order from this sensor gates which is need to open because presence of water, and contact with the emergency team to inform them of important gates that must be investigated

3.3 The Human and Market Advantages:

- 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 then lead to flood.
- The Governments pay a lot of money for maintenance storm water Inlet without 100% perfect result to leads the rainwater accumulating and still in the street then lead to flood.
- Save more than 60% for normal maintenance cost for Government (By Control management and pay only for storm water inlet which selected it and must need it for Maintenance)

- It can be solve (Without direct human intervention (E-Government)) by the electronically maintenance work by measuring the percentage of sand in the storm water Inlet inside (electronically) and Prevent the entry of sand in the storm water drainage by Automatically Smart Gates (It is New Innovation to improvement the Infrastructure Maintenance and Operation (Storm water O&M) and increase protectively, accurate result and quality of life, being environmentally friendly (Green Management).
- It will be protecting the public from the (hindering traffic, Accidents, flooding & Sliding asphalt) because (As we know before any raining, preceded sandstorm). The sand entry in the drainage of rain or filled in it, lead to the accumulation of rainwater in the street outside the storm water Inlet

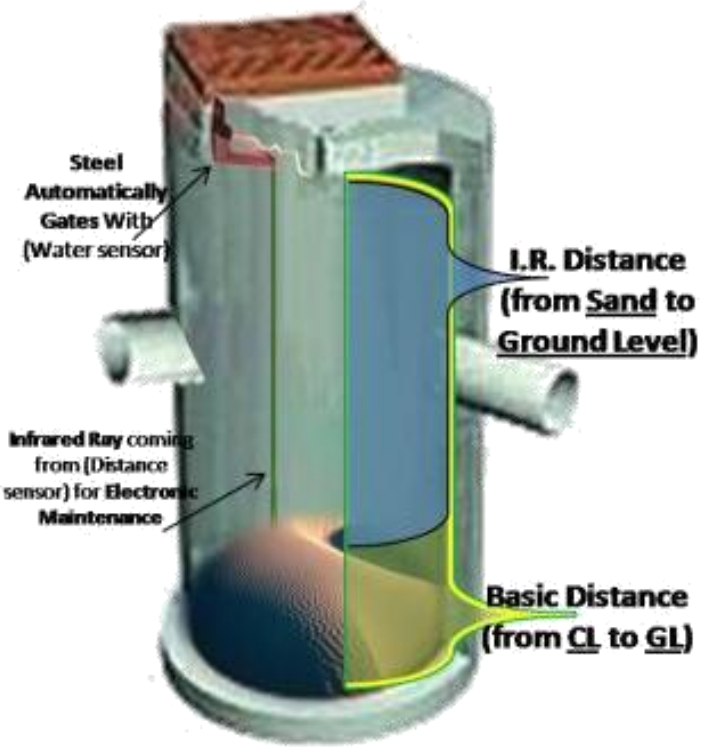


Fig. 7. The Program Equation to calculative sand amount = (I.R. Distance – Basic Distance)

4 Method of Statement (Fixed & Works): For Automatically Gates and Program Operation:

General: It is a steel automatically Gates fixed inside Storm water Inlets (Open & Close) on rain time by (Water sensor (fixed outside Storm water Inlets)) into small rechargeable motor, with Electronic Maintenance by USB Connection connect between (Computer program) and (Distance sensor) to clarify the proportion of the amount of sand inside the inlets with showing the percentage of sand in the number and place of inlet with time maintenance check in the storm water Inlet electronically on drawing program.

4.1 Device Details (see Fig. 8 & 9):

1. Steel automatically Gates fixed inside Storm water Inlets,
2. Water sensor (fixed outside Storm water Inlets)
3. Small motor rechargeable
4. Distance sensor (fixed inside Storm water Inlets columnar to Gates)
5. USB Connection

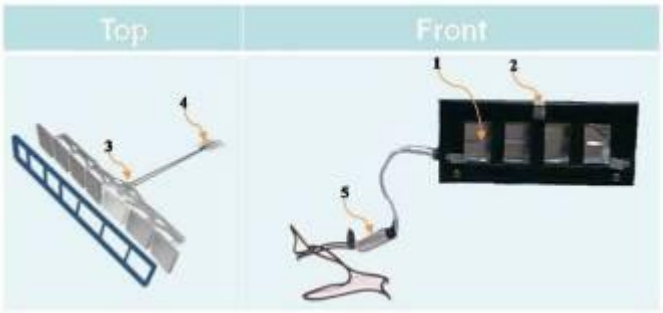


Fig. 8. Prototype

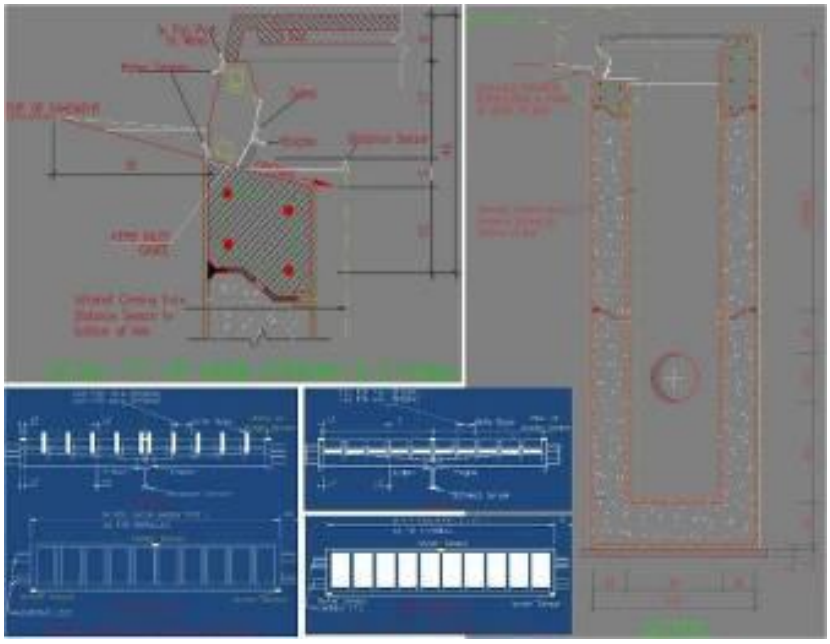
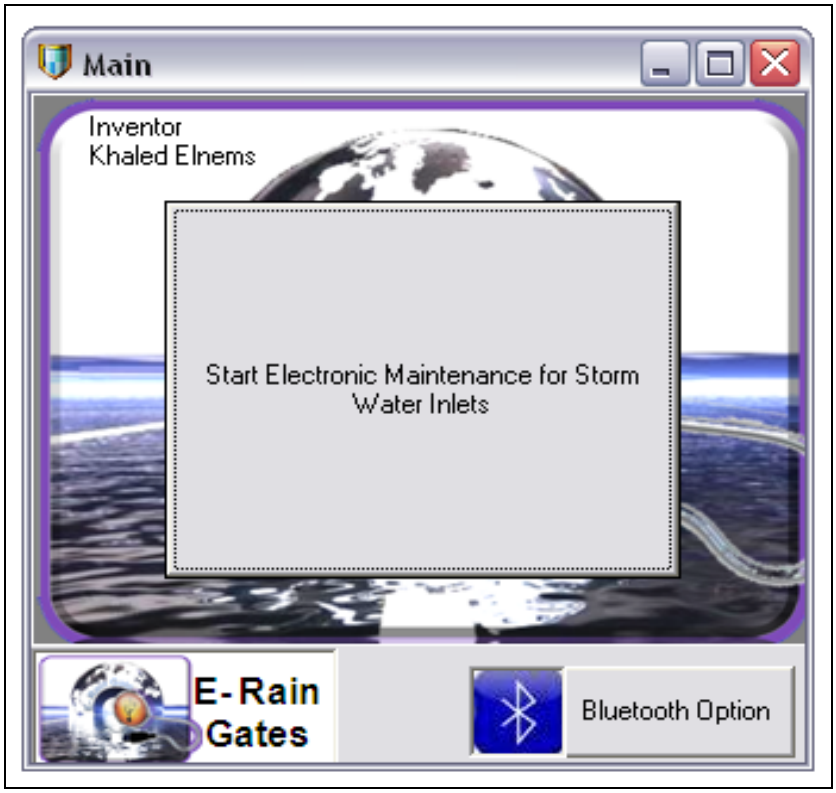


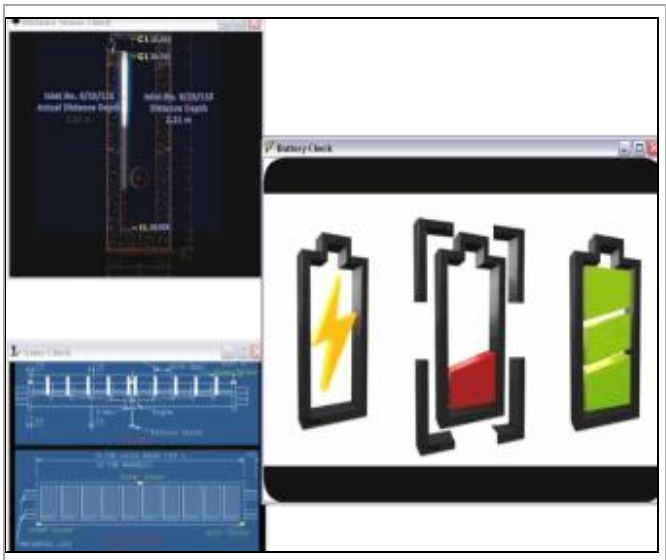
Fig. 9. Drawings

4.2 Maintenance Program Details: (See from Screen Shot 1 to Screen Shot 13):

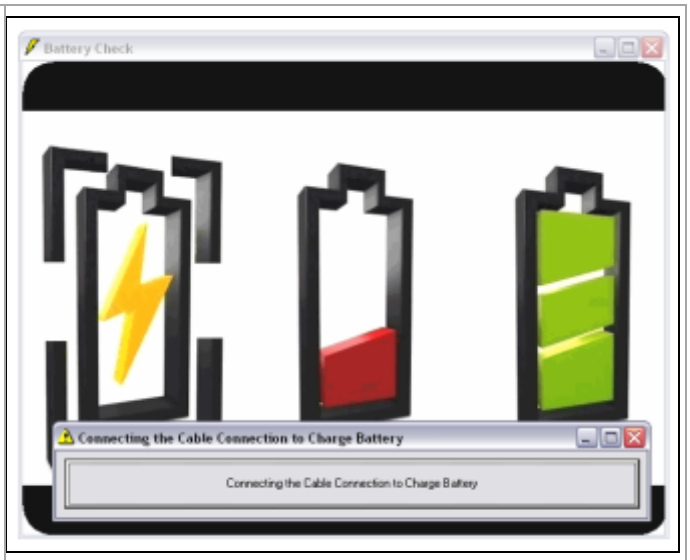
- Check the work of the Automatic Gates and battery charge.
- Order the (Distance sensor) to work and clarify the proportion of sand amount inside the inlets
- Showing the percentage of sand by number and place of inlet with time maintenance (see Fig. 7).
- Check in the storm water Inlet electronically and Mark on drawing program (Without any manual deception using drawing)
- Repeating automatically alarm if after checked the inlet and deducted some sand remaining inside, This alarm can only stopped after the program checked again by (Distance sensor) and confirms that no more sand left inside the inlet.



Screen Shot 1 - Main Interface of the Program



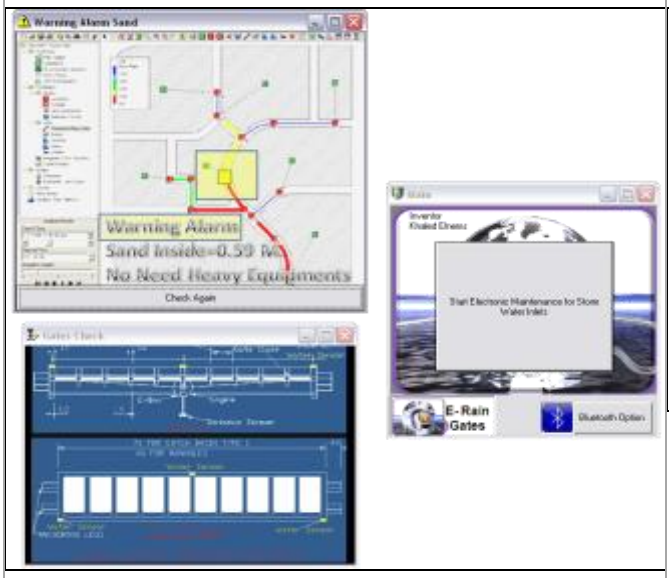
Screen Shot 2 – Pages Checking By Bluetooth



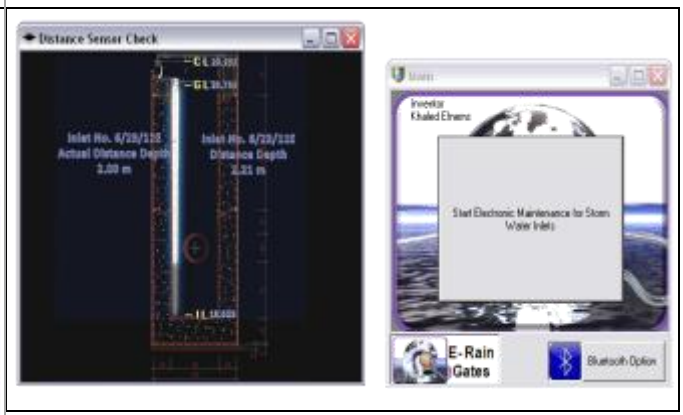
Screen Shot 3 – Must Connection by Cable

Screen Shot 4 – Checking Gates & Charging

Screen Shot 5 - Checking Sand By I.R



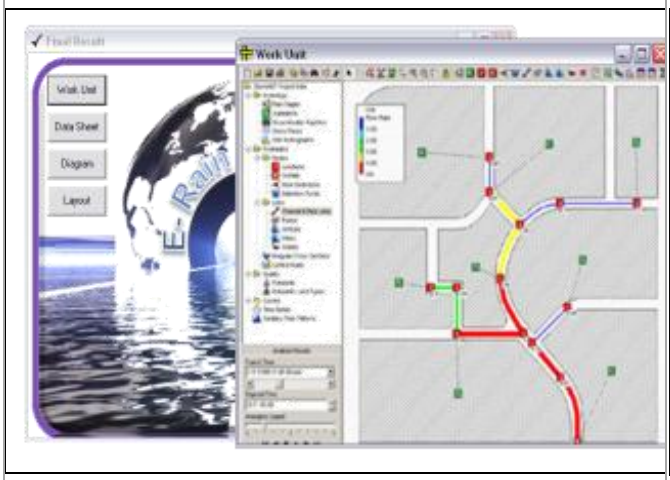
Screen Shot 6 – Warning Maintenance



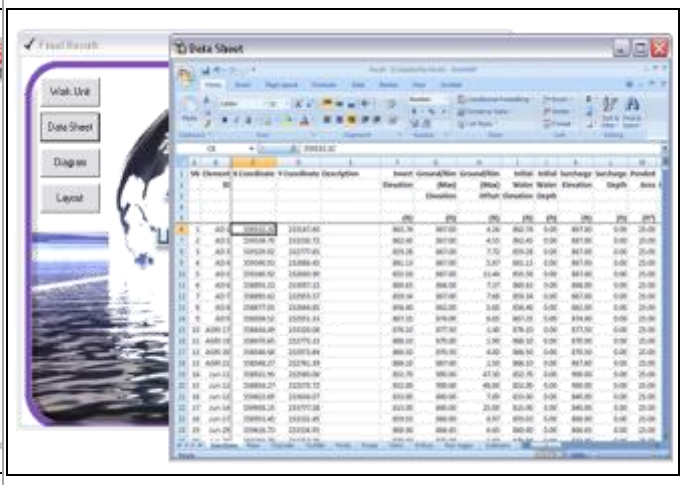
Screen Shot 7 - Checking Sand again

Screen Shot 8 - Accept Information by Draw

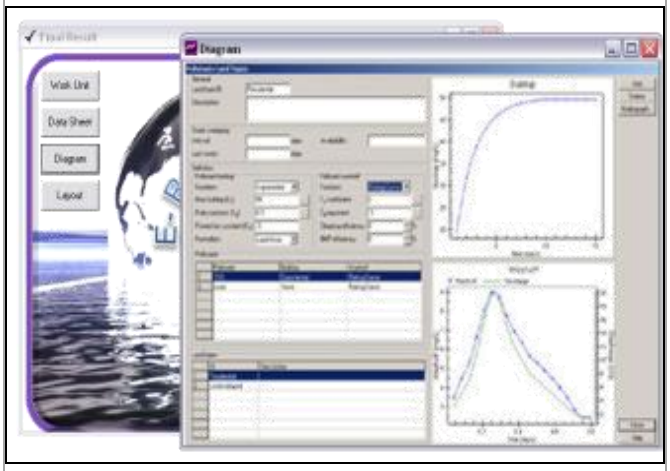
Screen Shot 9 – Final Result Page



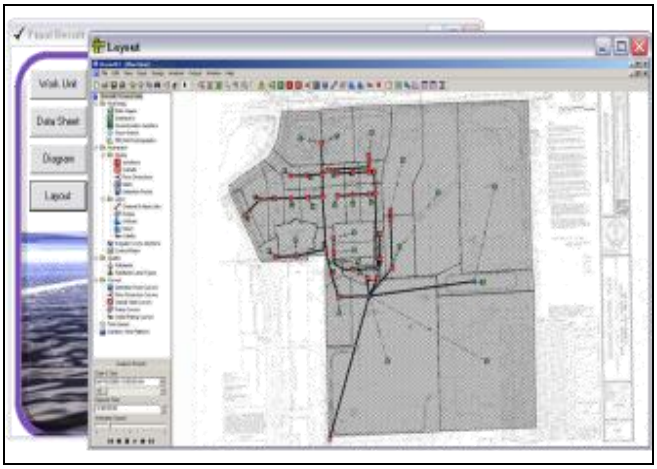
Screen Shot 10 – Work Unit Draw



Screen Shot 11 – Data Sheet Result



Screen Shot 12 – Diagram Result



Screen Shot 13 – Final Layout Result

5 This Invention Device Proved its Worth by Won a lot of Awards (To prove the Social Acceptability of the Proposal):

5.1 The promotion is done through International Inventions Exhibition, Conference and field trials documented and published in journals of Scientific & Engineering Research interest for Infrastructure Maintenance and Operation (Storm water O&M).

- My Manuscript in the International Journal of Scientific & Engineering Research Volume 3, Issue 10, October-2012 (ISSN 2229-5518) Subject it: (Civilectronics) link: http://www.ijser.org/onlineResearchPaperViewer.aspx?Civilectronics-The-Electronically-Control-of-Civil-Works-for-Infrastructure.pdf
- My Manuscript in the International Journal of Computer Science and Telecommunications Subject it: The Role of Computer Program in New Innovation [Volume 2, Issue 5, August 2011]

5.2 Thesis Research in The International Conference and published in a special issue of The International Journals:

- My Research & participation on the Fifth Arab Conference of Industrial Information and Networks (Morocco) Subject it: The Role of Computer Program in New Innovation & Networks
- My Research in The Third International Innovation and Invention Conference (Taipei, Taiwan) (for my Innovation) Subject it: The Electronically Control of Civil Works for Infrastructure Maintenance and Operation Automatically Gates for Storm water Inlets with Electronic Maintenance (Civilectronic)
- Thesis Research in The Engineering for Innovation Symposium EIS 2012 under European Alliance for innovation (Riva Del Garda, Italy) (for my Innovation) "The Electronically Control of Civil Works for Infrastructure"
- My Research in The Al-Azhar Engineering Twelfth International Conference, published in a special issue of Journal of Al Azhar University Engineering Sector, (JAUES)- (ISSN 1110-6409). Subject it: The Electronically Control of Civil Works for Infrastructure Maintenance and Operation Automatically Gates for Storm water Inlets with Electronic Maintenance (Civilectronic)
- My Research & published in The National Invention Institute (Revista de Inventica) Journal of Inventics, (Nr. 82 / 2013)- (ISSN 1210-3084) ROMANIA. Subject it: THE ELECTRONICALLY CONTROL OF CIVIL WORKS FOR INFRASTRUCTURE (O&M) - AUTOMATICALLY SMART GATES FOR STORM WATER INLETS WITH ELECTRONIC MAINTENANCE
- My Research & published in The SEMINAR ON CREATIVITY AND INNOVATION (ISLAMIC INNOVATION EXPO 2013 (i-INOVA '13)) Malaysia (Civilelectronics) The Electronically Control of Civil Works for Infrastructure (O&M)
- My Research & Poster in The Conjunction of IRIIE 2014 (IIUM International Research, Invention and Innovation Exhibition 2014) (INNOVATION & COMMERCIALISATION UNIT RESEARCH MANAGEMENT CENTRE) Malaysia (IRIIE Management System v4.10) (CIVILECTRONICS) THE ELECTRONICALLY CONTROL OF CIVIL WORKS FOR INFRASTRUCTURE (O&M) (Green Management)
- My Research in The 5th International Conference on Systematic Innovation (ICSI 2014) in California, USA (Civilelectronics) The Electronically Control of Civil Works for Infrastructure
- My Research in The (ICCSEE 2013) International Conference on Computer Science and Electronics Engineering in Dubai (Civilelectronics)
- My Research in The (ACMSS2013) Annual Conference on Management and Social Sciences in Taiwan (The Electronically Control of Civil Works for Infrastructure (O&M)
- My Research & published in The Conference of creativity and innovation to Guarantee Competitive Industrial (Kuwait)
- My Thesis Research & participation in The Grand Renewable Energy International Conference and Exhibition 2014 (Tokyo, Japan), Published in Area III: Solar Thermal Applications, (ISSN [01017] P-Po-13). Subject it: (Civilectronics) the electronically control of civil works for infrastructure (O&M) (Green Management) E- RAIN GATES: Automatically smart gates for storm water inlets
- My Thesis Research & participation in International Conference on Business Innovation and Technology Management ICBITM October 2014 Osaka, Japan, Paper ID: 11,Title: (Civilectronics) The Electronically Control of Civil Works for Infrastructure (O&M) (Green Management)
- My Thesis Research & participation in The 11th Operations and Technology Management (Asian Academy of Management International Conference) AAMC 2015 (Civilelectronics)
- My Thesis Research & participation in The (IICON 2015) the International Infrastructure Conference (Civilelectronics) in Malaysia
- My Thesis Research & participation in The (IJCIMBI 2015) The 1st International Joint Conference (Indonesia, Malaysia, Bangladesh, Ireland (Civilelectronics)

- My Thesis Research & participation in The (IBSSS 2015) The Global Symposium on Social Sciences International Conference (Civilelectronics) in Indonesia
- My Thesis Research & participation in The (AEDCEE 2015) International Conference on Alternative Energy in Developing Countries and Emerging Economies (Civilelectronics) in Thailand.

5.3 This Invention Device Proved its Worth by won a lot of Awards (To prove the Social Acceptability of the Proposal):

- Get 3rd International Rank in The International Inventors Award on Oct. 2011 in (Sweden Invention SIF125)
- The Outstanding International Diploma from (Sweden Invention SIF125) Sweden.
- Win Golden Medal on Aug. 2011 in The 2nd World Cup of Computer Implemented Inventions (3CIIs)Taiwan
- The Outstanding International Diploma from (Taiwan Invention & Innovation Industry Association) Taiwan
- Win Special Awards with Gold Medal from Asia Innovation Association (AIA) in Malaysia (i-ENVEX 2012)
- Win Gold Medal in 3rd International Engineering Invention & Innovation Exhibition Malaysia (i-ENVEX 12)
- Win Gold Medal on May 2012 in The EUROPEAN EXHIBITION OF CREATIVITY AND INNOVATION (E U R O I N V E N T)– ROMANIA
- Win Gold Medal in The MACAU Communication & International Innovation & Invention Expo (Russia)2012
- Win Bronze Medals on Nov. 2011 in The 4th International Inventions Exhibition (Kuwait City)
- Win Bronze Medals on SEOUL INTERNATIONAL INVENTION FAIR (SIIF) Korea 2011
- Win Gold Medal in The "New Time" International Innovation * New Technologies Exhibition- Ukraine 2012 - 2013 - 2015
- Win Bronze Medal in The Taipei International Invention Show & Technomart (INST 2012) Taiwan
- Win Silver Medal in The 7th International Exhibition of Inventions (Kunshan) China Associationn of Invention With The Honor Congratulations from the Minister of Higher Education (Egypt)
- Participation Certificate from The Taipei International Invention Show & Technomart (INST 2012) Taiwan
- Win Gold Medal The International Exhibition of Innovations, New Technologies & Design "INVENTIONS – BELGRADE 2013."
- Participation Certificate from The Green Entrepreneurship Program International eco (ECOPRENEUR 2013) Mongolia
- The Excellent Idea Award certificate in The Taipei International Invention Show & Technomart (INST 2013) Taiwan
- The Gold Legion of Honor of Invention with certificate from the World Invention Intellectual Property Association (WIIPA) in The Taipei International Invention Show & Technomart (INST 2013) Taiwan
- Participation Certificate from The African Innovation Foundation in Innovation Prize for Africa 2014 to prove my Innovation submission (E-Rain Gate) which is one of the 135 retained to the next level out of more than 600 submissions received for this competition from 42 countries across Africa
- Diploma and Silver Medal from (IFIA) in the 4th International Festival of Innovation - IRAN on 2014 (E Rain Gate)
- Participation Successful Certificate from The Abu Dhabi Technology development Committee (UAE) in the conference (INNOVATOR 2014) for (E-Rain Gate)
- Win Silver Medal with certificate in The International Exhibition of Youth Invention Contest (IYIC) Aug. 2014 from Korea University Invention Association (KUIA) in Seoul, KOREA.
- Special Award with Diploma from Association of Polish Inventors and Rationalizes (WARSAW) in (SIIF2014)
- Grand Prize from Hong Kong Invention Association LTD in (SIIF2014)
- Thailand Award for Best International Invention with from The National Research Council of Thailand – NRCT in (SIIF2014)
- Win Silver Medal with certificate in The 10th INTERNATIONAL SALON OF INVENTIONS AND NEW TECHNOLOGIES «NEW TIME» Sevastopol, Russian Federation 2014
- Win Bronze Medals on SEOUL INTERNATIONAL INVENTION FAIR (SIIF) Korea 2014
- The Best Practice in the Personal Award Category (Certificate & Letter) (Ref. No.ARE455-14) (Civilectronics) in the DIABP International Award from the (Dubai Municipality & UN)
- Finalist Winner for the MIT Entrepreneurial Forum Pan- Arab Competition. By (E- Rain Gate)
- Finalist Winner for the Go Green in the City 2015 (Schneider Electric) By (E- Rain Gate) in Paris
- Win Gold Medal with certificate in The 10th INTERNATIONAL SALON OF INVENTIONS AND NEW TECHNOLOGIES «NEW TIME» Sevastopol, Russian Federation 2015
- Win Gold Medal in Bangkok International Intellectual Property, Invention, Innovation and Technology Exposition (IPITEX 2016) in Thailand Inventors' Day 2016 under National Research Council of Thailand (NRCT)
- Special Award with Diploma from Association of Polish Inventors and Rationalizes (WARSAW) in Bangkok International Intellectual Property, Invention, Innovation and Technology Exposition (IPITEX 2016) in Thailand Inventors' Day 2016

Fig. 10. The Bloc World Acceptability of the Proposal

6 Market, Plan & Prototype to be available and enjoy considerable commercial success

6.1 Market Characterizations of this Product (Type of Market):

- (Targeted Users: The Governments & Small Privet City)
- The mechanism of supporting innovations and organizations involved by companies work with Operation & maintenance municipality to (manufacturing , fixed and maintenance it)
- No production of similar or counterparts product in the market or no competitors for the project's products in Market
- Determine the first sale point of the product for Countries which have rain water drainage networks (e.g. the Gulf Countries)

6.2 E- Rain Gate Business Model (Type of Market):

KEY PARTNERS

❑The Governments (municipality)

❑The (Consultant /Contractor) Companies work with Operation & Maintenance Municipalities

KEY ACTIVITIES

❑Manufacturing Gates.
❑Selling it
❑Installation and maintenance it
❑Management Control & training the program

KEY RESOURCES

❑Agreement (by Advanced Payment) with municipality (Government or Small Private City)
❑Factory (The technicians and industrialists' labor staff)
❑Management Company (Selling + Training program + Installation and Maintenance)

VALUE PROPOSITIONS

❑The sand entry in the drainage of rain or filled in it, lead to the accumulation of rainwater in the street

❑The Fraud in periodic maintenance and relying on manual maintenance incorrect information

❑The Governments pay a lot of money for maintenance storm water Inlet without 100% perfect result to leads the rainwater accumulating

CUSTOMER RELATIONSHIPS

❑Personal Proposals

❑Specialist Sales Companies work with Operation & maintenance municipality

CHANNELS

❑Specialist Sales Companies work with Operation & maintenance municipality (Government & Small Private City)

CUSTOMER SEGMENTS

❑The Countries have rain water drainage networks and more sand (e.g. the Gulf Countries)

❑The Countries have Storm water network (with O&M) but rainwater accumulating and still in the street then lead to flood

COST STRUCTURE

Will not exceed = 20,000$ for establishment of the factory with the crew, as initial investment, being divided in this ways: •20%: Construction collecting factory. •15%: Construction Management Company. •15%: Material manufacturing •25%: Technicians and industrialists. •10%: simple management structure. •15% Unforeseen costs.

REVENUE STREAMS

❑Save more than 60% for normal maintenance cost for Government (By Control management and pay only for storm water inlet which selected it and must need it for Maintenance)
❑Selling this New Application to apply it (Hard & Soft ware)

Fig. 11. E- Rain Gate Business Model

6.3 Profitability:

- The estimated cost of these gates =30$ and the measurement of government maintenance and operation for inlets of rainwater can be calculated as follows = 16 dollars yearly on maintenance for each inlet+ Time rainfall (emergency) at the accumulation of rainwater that do not drain in the inlets are in specific places (Wet Spots) and at split the cost to inlets, so that each inlet almost a year = 10$ = 16 + 10= 26$ per year
- That means 30$ (the price of the gate) to 26$ (the price of annual maintenance only) noting that this gate will last forever and will have only simple maintenance without any cost of labor.

6.4 Potential Demand of the Product:

- Will be large sales because will purchased by governments not individuals and also the big number of existed (Inlets) where the distance between one Inlet and another is between 20-25 meters this means in only one kilometre will be= 50 exits (Inlets) so Imagine that the E-Gates will be used in only one City whole!
- And the clients will be governments who are able to pay.

6.5 The Site / Place of the project:

- Factory inside or outside the city not require it big size would be an assembly factory initially.

Fig. 12: Market Logo

6.6 If apply this project in UAE, Abu Dhabi, Khalifa City B

- More Than 7000 Nos. of Inlets Storm Water We Need 20.000 USD as Initial Investment For Construction Simple collecting factory & Company
- The estimated profit & industrialization of these E-Gates =15$ per gate – and the total Gates Can be fix it = 20 Nos. of Gate per day = (7200 Nos. of gates per year) in the First year profit = 7200 X 30$= 216000 $ + (only 702Nos. Inlet X 26$ Normal O&M per year X 5 Years)=307260$
- Comparative cost of maintenance currently in force=26$ per Year / Inlet = 7200 Nos. X 26$ X 5 Years=936000$
- That is mean our project save for Government 70% with accurate result and quality of life
- The electronic assembly factory will be simple, simply operation and ease of maintenance, the degree of safety in operation and the amount of pollution caused by 0%.

7 Summaries

We explain here a new engineering category (Civilectronics):

Its definition simply is to integrate control and data transfer e- civil engineering to become a civil works more accuracy, control and abundant data, information, this invention can build a new concept (New Category) on extent of turning the concept of maintenance and operation of infrastructure through the normal civil works to work of a civil electronically controlled

General Meaning for (Civilectronics) is the combination of Civil engineering, Electronic engineering, Computer engineering, Control engineering and Systems Design engineering in order to the Electronically Control of Civil Works for Infrastructure Maintenance and Operation (My New Invented Category)

(Civilectronics) just included the combination between Civil (Infrastructure O&M) and electronics; hence the word is only a portmanteau of Civil and electronics.

Note: If this invention considered more expensive than normal way, then it could not be installed in all storm water inlets. There are areas called (Wet Spot) and These areas are the areas of water accumulation are caused by (differences in terrain or defects in asphalt for roads) leading to the existence of these points of water accumulation (Wet Spot), that is originally specific points from maintenance and operation section, about that will be installed this invention gates only in the inlets around this points (Wet Spot), where to complement the role of storm water inlets because these inlets are unable to end their role when fullness of sand and dirt, after that become worthless and this invention will play a big role in this to completed it.

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