# ANNEXURE 10

## SURVEY OF SELECTED INNOVATIONS IN THE AREAS OF ENGINEERING, MECHANICAL, ELECTRICALS AND IT

(TOTAL NUMBER OF PAGES 6)

## ANNEXURE 10

| Sr. NO. | Region | Project ID | Details of Innovation | Kind of inno | Innovation | Innovation t | Industry in wh |
|---|---|---|---|---|---|---|---|
| 1 | W | W/She/Energy/758 | SYSTEM (MECHANISM) FOR CONVERTING ROTATIO | I | | | Energy |
| 2 | S | S/Swa/Education/928 | Technology enabled welding skills development, assessm | | | | Education |
| 3 | E | E/aya/Healthcare/145 | Human Emotions:Theoratical algorithm that works on ord | Incremental | A computer algorith | IT | Social Security |
| 4 | W | W/Man/Engineering/784 | Single chip PLC (Programmable Logic Controller) using R | | | | Engineering |
| 5 | W | W/cha/Energy/734 | One utensil, minimizes the consumption of gas/fuel, base | Incremental | Home Utensil | Engineering | Appliance |
| 6 | N | N/Ami/Energy/A9 | Hydrocarbon Cracker Supplementry Information | I | | | Energy |
| 7 | S | S/V.S/Engineering/836 | Invention 1 Effective use of unused edges of cutting inse | Improvement | Tool | Engineering | Engineering |
| 8 | S | S/Ram/Healthcare/363 | Design and Development of PDT Laser system for Oral C | | | | Healthcare |
| 9 | S | S/Moh/Engineering/461 | Automatic Dosa Making Machine, its an improvement ov | Incremental | Device/Machine | Engineering | Food |
| 10 | S | S/Jay/Healthcare/818 | CUSTOM MEGA PROSTHESIS, a total solution for bone | I | | | Healthcare |
| 11 | E | E/Som/Textiles/638 | A system to Improve Rural Weaver Society in Terms of Sl | I | | | Textile |
| 12 | S | S/Vin/Social/845 | Age, Gender and Identity Recognition From Human Facia | | | | Social |
| 13 | S | S/sar/Social/760 | children friendly Door type Flushing system of urinals for | Improvement | Device | Engineering | Social |
| 14 | N | N/kus/Mobile VAS/908 | FarEye – Painless Dispatch 'n' Delivery | I | | | Mobile VAS |
| 15 | W | W/Pro/Dairy Technology/32 | Enrichment of milk with omega-3-fatty acid using "Alvel c | I | | | Dairy Technolc |
| 16 | E | E/Sam/Mobility/850 | Mild Run Flat TyreImprovement over tubeless tyre. Chan | Improvement | Product | Engineering | Automotive |
| 17 | W | W/Dha/Product and Servic | EMERGENCY TOILET- BIODEGRADABLE | I | | | Product and Se |

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| 18 | W | W/Pha/Social/584 | Delivery of Indian Language application on any device (P | Improvement | Software | IT | Mobile/telecom |
| 19 | W | W/Kev/Healthcare/939 | Hospitals in India depend upon the awareness of nurses | I | | | Healthcare |
| 20 | W | W/KHU/Engineering/626 | Robot for Transmission Line Inspection | I | | | Engineering |
| 21 | S | S/Sun/Energy/311 | SUPER-EFFICIENT ELECTRIC CEILING TYPE FANS W | I | | | Energy |
| 22 | S | S/San/Engineering/864 | Autonomous Underwater Vehicle (AUV) | I | | | Engineering |
| 23 | S | S/Mat/Energy/705 | PIE Pendulum Ignited Electric Generator | I | | | Energy |
| 24 | S | S/Jan/Bio Tech/698 | Novel Bacteriophage-derived anti-staphylococcal protein | I | | | Bio Tech |
| 25 | S | S/Dr./Healthcare/A5 | DEVELOPMENT RESPIRATORY MOTION MONITORIN | I | | | Healthcare |
| 26 | E | E/Pro/Engineering/440 | Improving the Livelihood of Rural People through Rural TI | | | | Engineering |
| 27 | N | N/Sun/Engineering/528 | GrainLife | | | | Engineering |
| 28 | W | W/DIN/Product and Servica | shoe | | | | Product and Se |
| 29 | S | S/Dr./Electronics and PCB | DESIGN AND DEVELOPMENT OF MICRO CONTROLL | Improvement | Device | Mechanical & | baby care & toy |
| 30 | E | E/Pra/Electronics and PCB | Electronic Main SwitchInvention 1: Switches are operated | Increment/Im | Device | Engeneering | Electronics and |
| 31 | S | S/SAI/Electronics and PCB | NOCTURNAL AUTO LAMPLED Head lamp for automotiv | Improvement | Device | Engieering | Automotive |
| 32 | W | W/Dr /Healthcare/672 | Variable version device. For surgeries around hip joint | I | | | Healthcare |
| 33 | W | W/Mih/Communications/71 | ETERNAL – Innovative Technology to protect CORPORA | I | | | Communication |
| 34 | N | N/Tri/Healthcare/708 | An Improved Oropharyngeal Airway | I | | | Healthcare |
| 35 | W | W/Mr,/Agriculture/A2 | "DESIGN AND MODELLING OF VERMICOMPOST SIEVI | | | | Agriculture |

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|---|---|---|---|---|---|---|---|
| 36 | S | S/Kar/Agriculture/953 | Onion Harvesting Machine | I | | | Agriculture |
| 37 | S | S/MAS/Agriculture/809 | Manual Boat Paddy Transplanter | I | | | Agriculture |
| 38 | S | S/PRA/Agriculture/142 | ARECANUT PICKING MACHINE. (Existing machine requ | Improvement | Machine/device | mechanical | Agriculture |
| 39 | E | E/Moa/Bamboo/30 | Bamhum- Invention of a New Wind Bamboo Musical Inst | I | Instrument | | Bamboo |
| 40 | S | S/Sya/Energy/417 | Internet enabled Electrical SwitchMaking the home smart | Improvement | Devise | Engineering | Electricals |
| 41 | W | W/Pat/Energy/517 | This Invention relates a New Method for Generating Pow | I | | | Energy |
| 42 | N | N/IND/Energy/68 | Gravity Based Sun Following Mounting System for SOLA | I | | | Energy |
| 43 | N | N/ABH/Electronics and PC | Roshni - Indoor Navigation System for Visually Impaired | I | | | Electronics and |
| 44 | N | N/Gaj/Electronics and PCB | AVIM-Sparsh | | | | Electronics and |
| 45 | N | N/Dr./Healthcare/150 | Invention 1: Solar powered Radiant baby/infant warmer. | Incremental | combination of dev | Engineering | Healthcare |
| 46 | E | Automotive | Bearings for ThrISK Bearings Industries have made Innov | Incremental | Device | mechanical | Automotive |
| 47 | S | Telecommunication | Digital electronic Energy Meter, Intelligent Modem, Power | I | | | Electronics |
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# ANNEXURE 10.1

## SURVEY OF SELECTED INNOVATIONS IN THE AREAS OF ENGINEERING, MECHANICAL, ELECTRICALS AND IT

## (INTERVIEW RESULTS)

(TOTAL NUMBER OF PAGES 16)

| | | | ANNEXURE 10.1<br><br>Response of Incremental Innovations | |
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| r. NO. | Details of Innovation | Kind of innovation (Breakthrough/improvement/incremental | Innovation | Innovation type |

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| **About the invention:** Human Emotions.<br>The innovation is a theoratical algorithm that works on ordinary webcam/optical sensor to read behaviour of the person and give alrms to the relevant authority if behaviour is unscuplours/wiered/terririst type. With the innovation, only one person's emotion can be mapped but distance of the person from the installed technological solutions does not matter for the instant innovation. Microsoft's invention can be used for multilple person but distance is a problem. The innovations would be of immense use at public places like railway stations to map terorist movements. The invention can be used at many public places as well. Camera generates the alarm and inform the police through smart apps. Technology may not be a breakthrough since the concept is already known in the art but it is very economical which can be further improvised and can be used in uncontrolled envionnment also.<br><br>**Patent Status:**<br><br>**Is 20years a desirable protection term? or low term is good enough":** No, lesser term is desirable<br><br>**Is the invention in Market and the revenue earned: No**<br><br>**Total inventment to bring innovation in the market: NA**<br><br>**Shelf Life (can it be easily improved further?):** This can be further improved by person skilled in art.<br><br>**Exected Revenue for GOI:** Govt is the primary customer for purchase of teh technology<br><br>**Impact on Empolyment generation:** | Incremental | A computer algorithm | 11 |

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| **About the innovation:** Innovation is a utensil which minimizes the consumption of gas/fuel. Base of cooking pan has been invented that has heat transfer unit which minimizes the wastage of heat. 35% saving on the fuel due to this invention.<br><br>**Status of Patent Application:** Filed patent application<br><br>**Economic angle:** Per piece the price of the product is Rs 600/-. Already, 2000 pieces have been sold in 5 months. The production cost per piece is 300/- and 35-40% is marketing cost. Thus, maximum profit per piece is Rs 150 - 200/-. 6-7% out of the total revenue goes to the government. Around for 500 pieces around 12-15 persons are required. 24 cr of families having minimum 2-3 hot plates (2-3 years life), 2-3 pressure cookers (5-6 years), 3-4 utensils minimum (hgher life time), 2-3 Kadai (4-5 yrs life time). so atleast the demand for the invention will be minimum 1-2 multiplied per family thus approx minimum 23cr pieces multiplied by Rs 600 per piece = 81300 cr .<br><br>**Is 20 years long protection desirable?:** Provisional application for this improved invention has been filed in feb 2015. One of the patent has been granted 5 years back for the original invention and the invention being sold is the improvement. The earlier patent is of no use to be maintained for 20 long years since the invention has been further improved, which is now in market and the provisional application has been filed for. The inventor is still in process of further improvising the invention.<br>**Impact on Employment:** In dye casting atleast 3 persons are required, 2 persons for drilling of holes, hard coating some 2-3 persons, retailers 3-4 persons.<br><br>**Is the invention in Market and the revenue earned:** Yes<br><br>**Total inventment to bring innovation in the market:** 50% cost of | Incremental | Home Utensil | Engine ering |

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| **About the Invention:** Effective use of unused edges of cutting inserts. Design of cutting tool holder helps to remove the material in the manufacturing industry (For a rod to be reduced we need a a machine which is a cuting tool) - The cutting tool has been improvised which helps immensley in cost reduction. In some cutting tools, the cutting happens with the cutting part which cannot be used ofetn and has to be discarded soon. Engineering has been done in terms of the cutting insert and now its usage time has been increased, the unused prortion of cutting insert has also been made usable. It is a basic technique which was easy to make and improve. The prior art till has been in existence for more than 50 years. No one has thus far thought about the basic improvement becasuse they have not thought about the small innovations especialy useful for small scale industries.<br><br>**Patent Status:** Provisional application filed for deign registration because regular patent grant is difficult becasue it takes a long time.<br><br>**Is 20 year of long patent term protection desirable:** No<br><br>**Shelf Lfe:** Improvements can be made easily by someone who is skilled in the art.<br><br>**Economic angle:** In market, low grade cutting tools are being sold for 5000 rs but this improvised technology is available at half the rate thus making it very economical. 2,500 rs per tool would be the rate at which this may be sold. So far 20 pieces have been sold out in 10-15 days. Basic investment wil be around 500 for basic material and for machining it will cost around 1000/- which is minus of marketing. 2% VAT to the Govt and tax will be 4.5%.<br><br>**Is the invention in market?: Yes** | Improvement | Tool | Engine ering |

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| **About the invention:** Automatic Dosa Making Machine, its an improvement over the existing prior art and can further be improvised quickly. Dosas in 1000 numbers can be prepared in one go as against not more than 10 dosa through conventional machine.<br><br>**Patent Status:**<br><br>**Is 20 years a desirable protection term? or low term is good enough":**<br><br>**Is the invention in Market and the revenue earned:**<br><br>**Total inventment to bring innovation in the market:**<br><br>**Shelf Life (can it be easily improved further?):**<br><br>**Revenue for GOI:**<br><br>**Impact on Empolyment generation:**<br><br>**Economic Angle:** | Incremental | Devices/Machine | Engineering |

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| | **About the invention:** Children friendly Door type Flushing system of urinals for Indian toilets. No electrical equipment, its completely mechanical. It's a device which is a connecting rod. Issue will be that break wires will have to be changed after every five year. Existing products are sensor based and are very expensive (15,000/-).<br><br>**Economic Angle:** Rs 2500/- per product is the proposed cost of the innovation.<br><br>**Employment generation:** Requires a mechanic for fitting it.<br><br>**Patent Status:** Provisional application filed, filed 3 years back.<br><br>**Is 20 years a desirable protection term? or low term is good enough":** No, lesser term is okay<br><br>**Is the invention in Market and the revenue earned:** No<br><br>**Shelf Life (can it be easily improved further?):** Yes<br><br>**Revenue for GOI:** approx 30% including all taxes | Improvement | Device | Engine ering |

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| **About the Innovation:** Mild Run Flat Tyre.<br>An Improvement over tubeless tyre. Changed the internal structure of the tyre and the material. Where material is known for some other uses. Multiple chambers are being made in the internal structure so that there are air pockets. So even if one gets punctured but other parts can make the tyre go on and on. Uses: Fuel efficiency increased by 3% and life of the tyre will be increased by more than 10%. Saves tyre from getting punctured and burst. May not be good in case car runs at a very high speed of more than 100km/hr and is suitable for Indian roads. Life of the innovation (improved tyre) is 10% more than the conventional tyre.<br><br>**Patent Status:** Patent application has been filed but stuck at the stage of examination due to issues of obviousness.<br><br>**Is 20 years long patent tern protection desirable:** Yes, because of the expected long shelf life of the invention.<br><br>**Shelf life:** In automotive Industry, change is not fast and hence shelf life of products is high.<br><br>**Economic angle:** Cost of existing tyre for Tata safari is approx. 13,000/- and for Honda city it is approx. 6,000/-. Cost of the improved tyre is Rs 8,000/-. The inventor proposes to sell 20,000 tyres in first year and by 5th year 20,00,000 tyres are expected to be sold. For the first year, an average turn over will be (20,000tyres x 8000/- as an average price = 160,000,000 Rs/- = Rs 16cr).<br><br>**Impact on employment generation:..**<br><br>**Is the product in market?:** No<br><br>**Expected revenue to GOI:** | Improvement | Product | engine ering |

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| **About the innovation:** Delivery of Indian Language application on any device (PC/Tablet/Mobile). nant Computing Platform (ACP) is first of a kind product which been designed to allows enterprise and developer communities to create applications in various Indian languages .The applications can be deployed on any type of end devices; be it Smart phone or non Smart phone and running any OS. Thus it provides flexibility on both platform (i.e Android/ iOS/ Windows/ Linux/ Symbian/..) and the type of end user devices.<br>ACP truly meets "Develop Once, Run Anywhere" paradigm as it is completely device OS agnostic.<br>The applications developed using the SDK (Software Development Kit) of ACP supports both Smart as well as Non-smart phones. The platform, through its inbuilt engine, would support Indian Language display on devices which doesn't support the specific Indian languages and the same application would be running on both smartphone and non-smart phone devices alike..<br>The platform has been designed with a view of providing an integrated engine for supporting the diverse need of multiple stakeholders. What differentiates ACP is its robustness, flexibility and diversity in application however under "Single Platform" which is currently not available with technology vendors.<br><br>**Shelf Life:** Further improvements cannot be easily made. It is device agnostic.<br><br>**Patent Status:** Status not available at the time of interview<br><br>**Is 20 years a desirable protection term? or low term is good enough":**<br><br>**Is the invention in Market and the revenue earned: Status not available at the time of interview**<br><br>**Total inventment to bring innovation in the market:**<br><br>**Revenue for GOI:** | Improvement | Software | 11 |

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| **About the invention:** DESIGN AND DEVELOPMENT OF MICRO CONTROLLER BASED ELECTRIC BABY CRADLE SWING WITH INSPIRING AMENITIES<br><br>Automatic baby swing which can be handled remotely as well. Electronic motor can do it, it can sing also by playing recorded mother song with timings. Its an improvement over existing where a fixed stand and continues to swing unless switched off. This invention can be hanged through a ceiling and does not require fixed stand.<br><br>**Economics:** This is cheap by 50% as against existing products.<br><br>**Patent Status:** Thinking to file patent application but cost is deterrent which is more than the invention.<br><br>**Is 20 years long term protection desirable?:** Small term protection is better because the invention can be easily improvised with futher enhanced features.<br><br>**Is the invention in Market and the revenue earned:** No<br><br>**Total inventment to bring innovation in the market:** NA<br><br>**Shelf Life (can it be easily improved further?):** Yes can be easily improvised further by a person skilled in the art<br><br>**Expected Revenue for GOI:** 12-30% in taxes per product sale<br><br>**Impact on Empolyment generation: NA** | Improvement | Device | Mechanical & Electronic |

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| **About the Invention:** Electronic Main Switch<br>Invention 1: Switches are operated manually. But the issues are faced. In case of short circuit, one has to run to the main switch. The invetion is about a small switch which acts as the control switch that can be placed along with other switches. The wire is connected to the main siwtch. Thus, if this small switch is switched off then automatically it can switch off the main switch. Very fine wire run upto the switch board. Designing has been done to design the short switches and have been placed in each room, If short circuit has happened in any room, then by operating these small switch placed in the same room or in any room the entire electrical circuit can be broken. Especially this invention is useful when the room is locked.<br><br>Invention 2: Sometimes fuse goes off. Electrician is to be called in case the person is not conversant to fix it. This problem has been solved by providing rotary switch by the inventor. So in case one fuse goes off, this rotary switch activates the another fuse thus the person never remains in dark. Convenience is increased for people.<br><br>**Economic angle:** The invenion can be sold at 5 rs per switch per room and one main electrical board switch at 1200/- Rs. For a middle class household which has 5 rooms total, then the cost of the invention per switch will be 5x5x1200/- = 1225Rs/- per home.<br><br>**Is 20 years a desirable protection term? or low term is good enough": Low term desirable** | Increment/Improvement | Device | Engeneering |

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| | **About the Invention:** Technology enabled assessment solution for all high stakes information.<br><br>**Patent Status:** Patent has ben recently granted, but it is likely that the shelf life of the invention may not be very high this maintaining of patent for 20 long years may not be desirable. | Increment | Computer programme | IT |
| 2 | **About the Invention:** ARECANUT PICKING MACHINE. (Existing machine requires human being to also climb on the tree with machine. The machines by him does not require human being to climb. These can be manually or electronically operated). His 2nd invention of robotic machine is expensive, Rs. 30,000/- and more complex to be manufactured by him in large numbers. His 3rd invention manual arecanut machine is at the stage of being prototyped which is mannualy operated coconut picking machine. His 3rd invention manual arecanut machine is at the stage of being prototyped which is mannualy operated coconut picking machine.<br><br>**Economic Angle**: His manual coconut machine is being sold at 6000/- rs, so far 1020 pieces have been sold .The machine is easy to make and can be easily copied. But stance of copying have not been witnessed.<br><br>**Patent Status:** Patent AP No. 3194/CHE/2010 & 5136/CHE/2014 are for manually operated arecanut harvesting machine which is awaiting examination.<br><br>**Shelf life**: Further improvement can be easily made<br><br>**Is 20years long protection desirable:** 20 year long protection may not be desirable due to short shelf life of the innovation. | Improvement | Machine/device | mecha nical |

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| | **About the invention:** Internet enabled Electrical Switch<br>Making the home smarter by making it internet enabled so that switches can be operated through mobile/internet. The technology already exists and the designing has been done so that these smart switches can be fitted in conventional way. We can scan through the entire home even if we are outside the home. Using mobile phones it can be regulated as well from remote. We have small electrical boxes. Energy consevation is the benefit.<br><br>**Patent Status**: Patent application filed 2013. Its a split architectural design<br><br>**Is 20 years a desirable protection term? or low term is good enough":** No, since the invention has low shelf life<br><br>**Is the invention in Market and the revenue earned:** No<br><br>**Total inventment to bring innovation in the market:**<br><br>**Shelf Life (can it be easily improved further?): Low**<br><br>**Revenue for GOI:**<br><br>**Impact on Empolyment generation:**<br><br>**Economic Angle:** 50-70% cheaper than similar products sold in other countries. 1000 rs a switch. One home will have around 40-50 switches (5 switches each room). thus 50,000/- per home. Further improvements can be made. Minimum gestation period will be around 5 years. | Improvement | Devise | Engine ering |

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| **About the invention:** Solar powered Radiant baby/infant warmer. This is an Innovative idea. A regular open care system which is to care for new born baby both sick/normal babies to keep the baby warm and maintain temperature has been connected to a solar panel size of 1.2 kWp. The invention is combination of existing two products and can be easily copied.<br><br>**Patent Status:** Patent applications have been filed since 2010 but the status is not known to the inventor. Seems ifficult to receive patent grant because its a combination of known devices with no synergistic results.<br><br>**Is 20 years a desirable protection term? or low term is good enough"**: It can be easily modified further<br><br>**Is the invention in Market and the revenue earned: No**<br><br>**Total inventment to bring innovation in the market: NA**<br><br>**Shelf Life (can it be easily improved further?):**<br><br>**Revenue for GOI:** The invention is proposed to be sold to GOI<br><br>**Economic Angle:** 440 nurseries of level 2 care in rural areas. The project cost is Rs 2,893,597,938,0/- (approx 28cr) thus apporx. 2 thousand eight hundred and ninty crores for district hospitals (440) in rural areas and below. The invention is proposed to be sold at 1 lak rs per bed. | Incremental | combination of devices | Engine ering |

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| **About the Invention:** Bearings for ThrISK Bearings Industries have made Innovation for Three Wheeler Bearing Segment. ISK has invented 3rd Generation Rear Wheel Hub Bearing Unit (Rear Axle) for Three Wheelers. By switching over from old technology to new technology 3rd Generation Rear Wheel Hub Bearing Unit Reduce the Friction and increase Mileage (5 to 8 Kilometre per litre of Fuel – CNG/Petrol/Diesel). Our Innovation has long life in comparison to old bearing. ee Wheeler segment.<br><br>**Patent Status: P**atent application filed, in August 2014<br><br>**Is 20 years a desirable protection term? or low term is good enough":** Yes<br><br>**Is the invention in Market and the revenue earned:** Yes<br><br>**Total investment to bring innovation in the market:** 15pc profit, 15pc excise, 5pc VAT, 73pc is your investment in raw material and production<br><br>**Shelf Life (can it be easily improved further?):** 10-15 years is the gestation period<br><br>**Revenue for GOI:** 18-20pc to Govt for Excise (12.5pc) and Tax (5 pc VAT)<br><br>**Impact on Empolyment generation:** 120 man power to manufacture 25,000/- per month<br><br>**Economic Angle:** Rs 5000/- pieces of bearing have been sold in last 6 month. Cost for one piece 750 (Original Equipment manufacturer) -900Rs/- (for | Improvement | Device | mecha nical |

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| Digital electronic Energy Meter, Intelligent Modem, Power load system, street light mangaement system operating it from some isolated area requires manpower. Innovation helps it in automatically switching it off/on and does not require a manpower. through one command all the 500 switches can be put on at 6 pm and put it off in the morning. At around 11pm, illumination point can be reduced since the traffic is much less and saves power.<br><br>**Patent Status:** Provisional patent application filed<br><br>**Is 20 years a desirable protection term? or low term is good enough":**<br><br>**Is the invention in Market and the revenue earned:**<br><br>**Total inventment to bring innovation in the market:**<br><br>**Shelf Life (can it be easily improved further?):**<br><br>**Revenue for GOI:**<br><br>**Impact on Empolyment generation:**<br><br>**Economic Angle:** For one unit of electricity, 5 Rs is being charged with savings of energy of aroud 35%. Total power consumptions in about 25,000/- units in one month = (35% of power saving x 5rs. in one year = 44,000/- rs saving ) = 44,000x 2 = 88,000/- will be cost of the technology. (Mysore, Bangalore are the two states where it has been sold) | Incremental | Software | 11 |