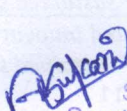


## Progress Report- IEDC

<b>Name of the College/Institution with complete Address including Phone numbers</b>		Sandip Institute of Technology and Research Center			
<b>Year of starting of project</b>		2016			
<b>Name of the Head/Principal of the Institution/College</b>		Prof. (Dr.) Sanjay Trymbak Gandhe			
<b>Name of IEDC Coordinator</b>		Er. Nikhil Lilakar Kulkarni			
<b>Contact Details of IEDC Coordinator including phone numbers</b>	<b>Mobile Number</b>	9168644463 / 9970016211			
	<b>e-Mail ID</b>	<a href="mailto:nikhil.kulkarni@sitrc.org">nikhil.kulkarni@sitrc.org</a>			
<b>Financial Details</b>					
<b>Previous Sanction Orders details</b>		<b>Sanction Order No.</b>		<b>Sanction Order Date</b>	<b>Amount</b>
		01	11/10/2015-NEB(C)	13/05/2016	5,30,000
		02	11/10/2015-NEB(G)	13/05/2016	7,90,000
		03	11/10/2015-NEB(G)	27/09/2017	7,66,300

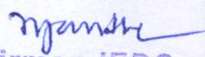

**Chairman-IEDC**  
 Sandip Foundation's  
 Sandip Institute of Technology  
 & Research Centre,  
 Mahiravani-422 213, Nashik





Technical Outcome year wise			
Title of the project	Outcome in terms of product/process development	Current Status Patent filled (if not filed, then authorized reason),	Socially and Economically Relevance
<b>A.Y./F.Y. 2017-18</b>			
Cashless Napkin Vending Machine		Kindly Refer I1.docx /I1.pdf	
Virtualization by Integrated Lightweight Development Tool (VILD) For Multimedia Applications		Kindly Refer I2.docx /I2.pdf	
Dry Turning of Duplex Stainless Steel (DSS 2205) using Carbide Tools		Kindly Refer I3.docx /I3.pdf	
Double pole Electromagnetic Engine		Kindly Refer I4.docx /I4.pdf	
NIVAARA –Redefined Housing		Kindly Refer I5.docx /I5.pdf	
<b>A.Y./F.Y. 2016-17</b>			
An App for Emergency Detection, Flash Alarm and Information System		Kindly Refer I6.docx /I6.pdf	
Journal paper Vending Machine (JPVM)		Kindly Refer I7.docx /I7.pdf	
Web based IEEE Paper Formatting Tool		Kindly Refer I8.docx /I8.pdf	
RFID and WSN based Structural Health Monitoring		Kindly Refer I9.docx /I9.pdf	
QR Code Based Personal Health Record Smart Card		Kindly Refer I10.docx /I10.pdf	

1	<b>Total number of projects supported so far</b>	10
2	<b>Total fund provided, so far</b>	Rs. 20,86,300/- INR ( Rupees Twenty Lakhs Eighty Six Thousands and Three Hundred Only)
3	<b>No. of Patents filed by students</b>	<ul style="list-style-type: none"> <li>Through IEDC Supported Innovations: <u>06</u></li> <li>Through Institute Self Sustained supported Innovations: <u>90</u></li> </ul>
4	<b>No. of companies/Starts up Set up by Students</b>	<ul style="list-style-type: none"> <li>Through IEDC Supported Innovations: <u>2 In progress</u></li> <li>Through Institute Self Sustained supported Incubation:               <ul style="list-style-type: none"> <li>Student Led: 11</li> <li>Others: 04</li> </ul> </li> </ul>

  
**Chairman-IEDC**  
 Sandip Foundation's  
 Sandip Institute of Technology  
 & Research Centre,  
 Mahiravani-422 213, Nashik





Technical Outcome year wise			
Title of the project	Outcome in terms of product/process development	Current Status Patent filed (if not filed, then authorized reason),	Socially and Economically Relevance
Cashless Napkin Vending Machine	<ol style="list-style-type: none"> <li>1) Sanitary Napkin Vending Machine with cashless facility using Digital Wallet like Paytm and BHIM UPI. Prototype is developed and validated the operation of the vending machine using Paytm successfully.</li> <li>2) It is also supported with Coin acceptor, a standby mode in case of network failure</li> <li>3) Finished product development is under progress</li> <li>4) Product will be the contribution to the Women empowerment, cashless India and Digital India campaign</li> <li>5) Product will be useful for Female of above 13 year Age which will fulfill the need in emergency</li> </ol>	Indian Patent Filed Application No. 201821004599	<ol style="list-style-type: none"> <li>1) The finished Product can be used at Shopping Malls, Hostels, Public toilets etc.</li> <li>2) Since it is like any time vending machine any one can use it whenever she needs it.</li> <li>3) It can be available at price affordable to the end user.</li> <li>4) Make free from view of the stigma and social taboo associated with/sanitary napkins, majority of the girls/women does not feel embarrassed and hesitate to go to the commonly known.</li> <li>5) Increase in usage of cashless payment platforms to ensure participation in Digital India Mission</li> <li>6) With the above aspects the machine will play vital role in contribution to Digital India and Cashless India campaign launched by the Government of India.</li> <li>7) It will be significant contribution to Women Healthcare and Sanitation.</li> </ol>





Technical Outcome year wise			
Title of the project	Outcome in terms of product/process development	Current Status Patent filled (if not filled, then authorized reason),	Socially and Economically Relevance
Virtualization by Integrated Lightweight Development Tool (VILD) For Multimedia Applications	<ul style="list-style-type: none"> <li>• So our solution is to build the tool to create the virtual world that is our platform VILD (virtualization by integrated lightweight development tool).</li> <li>• We will be creating this tool based on JavaScript so it doesn't even require any type special compiler to compile our platform it could be easily run in the web browser.</li> <li>• This platform could use in the HTML so it makes as easy to write a web page code to create the virtual reality stuff.</li> <li>• The entire VR products based on the traditional system have a huge size. e.g. :( the mesh of a cube) it have its file size approx. in megabytes but as we are creating the virtualization of virtualization it's going to make the size really very small.</li> </ul>	Indian Patent has been Filed (Application No. awaited)	<ul style="list-style-type: none"> <li>• VR is immersive, putting users in the middle of the action, making them active participants rather than passive watchers.</li> <li>• It because it feels like a real experience, bridging the gap between users and their digital avatars, early research suggests that VR has a deeper and more long-lasting psychological impact than other media.</li> <li>• Thus far, VR games have captured much of the public and media attention.</li> <li>• Instead of OpenGL ,IDE's,APK and Google API but using our platform we can easily implement our Virtual World.</li> </ul>






Technical Outcome year wise			
Title of the project	Outcome in terms of product/process development	Current Status Patent filed (if not filed, then authorized reason),	Socially and Economically Relevance
Dry Turning of Duplex Stainless Steel (DSS 2205) using Carbide Tools	<ul style="list-style-type: none"> <li>• <b>Optimized cutting parameter:</b> Cutting forces and residual stresses are the measuring parameters which affects the tool life of insert and the fatigue life of Duplex stainless steel. When the cutting parameters are not selected properly the cutting tool wears quickly and get broken abruptly. It increases the machining cost of component. So by optimizing the parameters of machining like cutting speed, feed and depth of cut it is going to increase the tool life of insert, fatigue life of DSS and also increases corrosion resistance of material.</li> <li>• <b>Reduction in pollution and hazardous effect:</b> The cutting fluid used in metal cutting industries represents 16-20% of the manufacturing cost and have several negative health and environmental impact. Green or dry machining is desirable for clean, safe and cost effective process which minimizes the ill effect of cutting fluid and lubricants. Due to the absence of coolant, dry turning is environment friendly and clean machining process.</li> <li>• <b>Increase productivity and life of component:</b> By choosing hard cutting tool material, tool with surface coating and selecting appropriate cutting conditions tool life of insert is increases which increase productivity. By optimizing cutting parameters which gives us higher compressive residual stresses and less cutting forces we can increase the life of component.</li> </ul>	Indian Patent has been Filed (Application No. awaited)	<p><b>Social Relevance</b></p> <ul style="list-style-type: none"> <li>• Changing machining conditions to improved climate conditions-By implementing Green machining over wet machining the use of cutting fluids and lubricant is eliminated. Due to eliminating use of the cutting fluid pollution is reduces and also the hazardous effect on the health of the operator is reduces.</li> </ul> <p><b>Economical Relevance:</b></p> <ul style="list-style-type: none"> <li>• Use of Duplex Stainless Steel over 300 series austenite stainless steel will reduces the material cost, increases strength of material, increases surface roughness and fatigue life which will increase service life of component.</li> </ul>





Technical Outcome year wise			
Title of the project	Outcome in terms of product/process development	Current Status Patent filled (if not filed, then authorized reason),	Socially and Economically Relevance
 <p>Double pole Electromagnetic Engine</p>	<ul style="list-style-type: none"> <li>An electric engine vehicle is a great way for you, as a consumer, to save a lot of money on gas. However, there are so many different reasons why you should invest in an electric car in the modern day of technology.</li> <li><b>GREEN TECHNOLOGY:</b> ELECTRIC VEHICLES are entirely charged by the electricity you provide, meaning you don't need to buy any gas ever again. Driving fuel based cars can burn a hole in your pocket as prices of fuel have gone all time high? With Electric vehicles, this cost can be avoided. Though electricity isn't free, an electric vehicle is far cheaper to run.</li> <li><b>POLLUTION:</b> Electric vehicles are 100 percent eco-friendly as they run on electrically powered engines. It does not emit toxic gases or smoke in the environment as it runs on clean energy source. They are even better than hybrid cars as hybrids running on gas produce emissions. You'll be contributing to a healthy and green climate.</li> <li><b>POPULARITY:</b> EV's are growing in popularity. With popularity comes all new types of cars being put on the market that are each unique, providing you with a wealth of choices moving forward.</li> <li><b>SAFETY:</b> Electric vehicles undergo same fitness and testing procedures test as other fuel powered cars. In case an accident occurs, one can expect airbags to open up and electricity supply to cut from battery. This can prevent you</li> </ul>	<p>Indian Patent has been Filed (Application No. awaited)</p>	<p><b>Social Relevance:</b> For almost 100 years, we've relied on internal combustion engines as the primary means to move our cars. In that time, engine technology has advanced but problems like pollution and noise persist. Below are some of the potential social impacts from shifting to Electric vehicles.</p> <ul style="list-style-type: none"> <li><b>Urban air quality:</b> - Electric vehicles produce little or no tailpipe emissions, which helps improve urban air quality. Despite improvements, New York City still fails to meet Federal standards for ozone levels. Unlike regular cars, electric vehicles create little or no local ozone emissions.</li> <li><b>Carbon Emissions:</b> - When recharged from the electric grid in New York City, Electric vehicles lead to carbon emissions at power plants that supply the city. As of 2007, this amount was about 0.55 lbs of CO<sub>2</sub>e per mile. This is lower than almost any other vehicle on the road.</li> <li><b>Oil independence:</b> Electric vehicles would dramatically reduce that amount, as the energy sources for India are primarily natural gas, hydropower, nuclear, and increasingly, renewables.</li> <li><b>Urban noise:</b> Because they lack pounding pistons they reduce vehicle noise, especially at city speeds.</li> <li><b>Urban heat:</b> Only about 15% of the</li> </ul>



	<p>and other passengers in the car from serious injuries.</p> <ul style="list-style-type: none"> <li>• <b>RECYCLING:</b> As the old IC Engine can be replaced by DPE-MAG Engine, the cost for purchasing a motorized vehicle can be avoided.</li> </ul>		<p>energy in gasoline gets converted into motion. Much of the rest is lost as waste heat-one of the reasons it's sometimes possible to fry an egg on the hood of a car. Electric vehicles use the energy in their batteries much more efficiently and create less heat, welcome news for pedestrians walking next to a grid locked street.</p> <p><b>Economic Relevance:</b></p> <ul style="list-style-type: none"> <li>• Electric vehicles have been competing with the internal combustion engine for more than a century, and they have never won. Batteries are more expensive, have less range, and require more time to recharge than it takes to fill a gas tank.</li> <li>• The model shows that the plug-in electric engine market is both economically and financially viable. However, the economic and financial returns accrue over the longer term. The move towards a plug-in electric vehicle market also generates large savings in greenhouse gas and air pollution emissions.</li> <li>• In the short term there is Economic Viability of Electric Vehicles increased uptake of alternative engine configurations in the small vehicle category. As vehicle prices fall, the vehicle range increases and more charging infrastructure becomes available, owners of larger vehicles and vehicles that travel large distances tend to purchase a higher proportion of EVs.</li> <li>• This is due to the fact that operating costs are more important for these vehicle owners. Higher levels of charging infrastructure (as represented in the different scenarios) significantly increase the take-up of plug-in electric vehicles and hence increase the viability of the market.</li> </ul>
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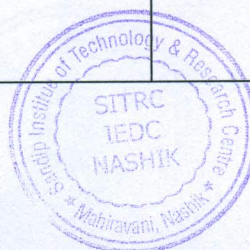


Technical Outcome year wise			
Technical Outcome year wise			
Title of the project	Outcome in terms of product/process development	Current Status Patent filled (if not filed, then authorized reason),	Socially and Economically Relevance
NIVAARA – Redefined Housing	<ul style="list-style-type: none"> <li>People will get more sophisticated solution with minimum space requirement for the time being during the periods of Natural/Manmade Disasters.</li> <li>Economy can be achieved with all amenities at minimal cost</li> <li>A new Semi-Permanent housing industry will be commenced which will revolutionize the way people live in disaster relief camps.</li> <li>Nivaara as being a prefabricated structure which is easy to transport and install.</li> </ul>	Indian Patent has been Filed (Application No. awaited)	<p><b>Social Relevance</b></p> <ul style="list-style-type: none"> <li>The Mass Housing problem after natural or manmade calamity will be solved.</li> <li>All Social quotients are taken into consideration while implementing NIVAARA.</li> <li>NIVAARA aids in minimizing the Environmental degradation Post Disaster by giving systematic housing and waste collection system.</li> </ul> <p><b>Economical Relevance</b></p> <ul style="list-style-type: none"> <li>It's semi-permanent mass housing scheme which will reduce the cost of living in affected area.</li> <li>Also NIVAARA will provide commercial space for small Vendors to sustainable living for the near Future.</li> <li>Government/NGO's would be benefited over a long term as NIVAARA is reusable and can be transported quickly for further use</li> </ul>





Technical Outcome year wise			
Title of the project	Outcome in terms of product/process development	Current Status Patent filled (if not filed, then authorized reason),	Socially and Economically Relevance
Emergency detection, flash alarm and information System for smart city	<ul style="list-style-type: none"> <li>With the growing number of crimes every day, safety has become a major issue for each and every human being. When in an emergency situation, if help is not provided at the right time, unwanted consequences can occur.</li> <li>Considering this, we are developing a strong Android Application which is also powered by a Bluetooth wristband. When the Emergency widget of this App, or the wristband's button is pressed, every user of this App in the range of 1 kilometer around the victim is made aware about the victims situation through a               <ul style="list-style-type: none"> <li>DISTRESS FLASH - ALARM.                   <ul style="list-style-type: none"> <li>After flash alarming the phones of every user in the range of 1 km radius around the victim, an Emergency call will be made to the nearest police station and 15 registered emergency contacts will be sent a help me please text me message. Because of this, the victim may get help from the nearby people first. Our information system focuses on the following points:</li> </ul> </li> </ul> </li> <li>Many a times it happens that the people in the city are not aware about the situations happening in the city. Example - Roadblock, flood affected areas, political instabilities etc. Because of this, a lot of time and money could be wasted.               <ul style="list-style-type: none"> <li>For this reason our information system will continuously send updates through pop-ups to every App user in the registered city.</li> </ul> </li> </ul>	<p>As per New Revised CRI guidelines July 2017 Innovation is not patentable.</p> <p>Whereas Copyright has been successfully filed</p> <p>Diary No.: 9469/2017-CO/L</p>	<ul style="list-style-type: none"> <li>Nowadays the Crime ratio is increasing in the Society.</li> <li>To aware around the people of victim and get immediate help from them can done by using this app.</li> <li>With help of Low battery notification the registered number can get last location of user. So can aware about user location.</li> <li>The information system will aware bout the natural disaster like earthquake, landslides and others.</li> <li>Local residential people can aware about the situation and handle with proper disaster management system.</li> <li>Time and human efforts are saved which is one of the main aim while saving lives of human beings.</li> </ul>





Technical Outcome year wise			
Title of the project	Outcome in terms of product/process development	Current Status Patent filled (if not filed, then authorized reason)	Socially and Economically Relevance
Journal Paper Vending Machine (JPVM)	<ul style="list-style-type: none"> <li>System is designed to solve the daily issue of resident as well as non-resident students to dispense journal paper on acceptance of a standard coin.</li> </ul>	<p>As per Patentability Search by our IPR Team and Legal Advisor (IPR), Innovation is not patentable under obviousness criteria</p>	<ul style="list-style-type: none"> <li>Easy Access to Journal Papers.</li> <li>Journal Papers available 24x7.</li> <li>Time spent to avail Journal Papers reduced.</li> <li>Student satisfaction.</li> <li>Inspiration for other students to find solution to day-to-day problems on their own.</li> <li>More such machines to come up in future, reducing human dependency.</li> <li>Embedment of billing systems in such machines will promote cash-less transactions.</li> </ul>





Technical Outcome year wise			
Title of the project	Outcome in terms of product/process development	Current Status Patent filed (if not filed, then authorized reason),	Socially and Economically Relevance
Web Based IEEE Paper Formatting Tool	<ul style="list-style-type: none"> <li>User level bugs that mostly generated during formatting are completely avoided.</li> <li>No need of additional software such as citation manager, Math editor etc.</li> <li>User friendly interface. A novice user also can use easily.</li> <li>Subordinate or additional software or tools are not needed. It is completely independent.</li> <li>Templates for most of IEEE conferences and journals are included in template library. So, author need not to separately download it.</li> <li>Reduced paper formatting time.</li> <li>Images, graph and charts can be easily formatted as per the specifications of IEEE.</li> </ul>	<p>It's pure software module. As per CRI 2016 guidelines, mere software can't be patented. So, Patent is not filed.</p> <p>Whereas Copyright has been successfully filed Diary No.: 6462/2017-CO/L</p>	<ul style="list-style-type: none"> <li>This software will help guide to publish research articles to a person who's articles gets rejected only because of poor formatting as per template.</li> </ul>





## Technical Outcome year wise

Title of the project	Outcome in terms of product/process development	Current Status Patent filed (if not filed, then authorized reason),	Socially and Economically Relevance
WSN Based Infrastructure health Monitoring and audit system	<ul style="list-style-type: none"> <li>Nominated in the top 50% of the projects under judges category in <b>Transform Maharashtra, Worli, Mumbai</b> under the category <b>Smart &amp; Smarter: Development of sustainable &amp; livable cities.</b></li> <li>Nominated in the top 50 teams of <b>PROCOM-2017</b> competition held at <b>Sardar Patel Technology Business Incubator (SP-TBI), Mumbai.</b></li> <li>Nominated in the final round of <b>6<sup>th</sup> CSI-InApp National Student Project Awards 2017, Trivandrum, Kerala.</b></li> <li>Nominated in the final round of <b>Dr. APJ ABDUL KALAM Innovation Ecosystem</b> national level project competition, <b>Chennai, Tamilnadu.</b></li> <li>Nominated in the final round of <b>Best Innovation Awards</b> national level project competition organized by GHR Labs, Wagholi, Pune.</li> <li>Participated in <b>Project Competition-AAYAAM 2017</b> held at SITRC, Nashik.</li> <li>Showcased ou project idea in <b>cPGCON 2017</b> a state level event held at Sandip Foundation, Nashik.</li> <li>Nominated in the top 7 business ideas in the <b>IEI Idea Challenge</b> programme held at <b>The Institute of Engineers (India), Nashik Local Centre.</b></li> <li>Participated in the <b>Young Innovators Awards</b> initiated by Zee 24 Taas.</li> </ul>	Indian Patent Filed Application No. 201721022210	<ul style="list-style-type: none"> <li>There is a phenomenal rise in construction activities in the field of civil engineering in the recent years. Major structures like buildings, bridges, dams are subjected to severe loading and their performance is likely to change with time. It is, therefore, necessary to check the performance of a structure through continuous monitoring. If performance deviates from the design parameters, appropriate maintenance is required. The life of a structure depends on initial strength and the post construction maintenance. It is for this reason that the necessity of Infrastructural Health Monitoring (IHM) is emphasized worldwide.</li> <li>With an advent of all new structures coming up and while India is competing in today's competitive global market, one cannot lose track of the stock that India has in older structures both privately and government owned areas. These have known or unknown deficiencies and will not be identified unless a disaster is experienced. However, it is too late then with a tremendous human loss on hand and the figure-pointing to easy targets. This leads to the present state of the poor affairs and needs a careful consideration to be pro-active to conduct infrastructural health monitoring and providing proper solution and then it would be up to the owner, may it be private or government to execute it in the national interest.</li> <li>In India due to negligence and non availability of technology, IHM has not been taken seriously and therefore misses its full potential. If safety standards are emphasized and followed IHM will grow to its full potential and be an integral part of infrastructural maintenance and management. Safety is a serious issue and should be addressed properly in the future.</li> <li>The structural audit of the infrastructures is done every 5-7 years after the structure is built. The audit is done manually or visually by doing some tests on the structure. This methodology does not</li> </ul>





	<ul style="list-style-type: none"> <li>• Nominated upto the 2<sup>nd</sup> round of <b>KPIT Sparkle 2017</b> project competition,Pune.</li> <li>• Research article entitled <b>RFID and WSN based Structural Health Monitoring</b> published in IEEE International Conference on Engineering and Technology (ICET '16), Coimbatore, Tamilnadu.</li> </ul>		<p>give real-time information and accuracy level is also very low. Also, the structures and human life is affected by the natural calamities that occur suddenly. Many lives are lost as people do not get to know what exactly happens at the time of calamities. Hence, continuous and real-time monitoring of an is the dire need for the safety and integrity of infrastructure as well as human life.</p> <ul style="list-style-type: none"> <li>• The IHM system comprises of sensors which sense acceleration, vibration, and water-level and do the wireless communication with the host application.</li> <li>• The data will be collected in the database and will generate the audit report. This report will give a detailed knowledge of the damage caused to the infrastructure.</li> <li>• At the time of the generation of the warnings offline messages and e-mails will be sent to the authorities.</li> <li>• A concept of “closed circuit” is added to the system. If the circuit breaks due to any calamity like the collapse of the bridge then it will give an alarm or warning to the people and also to the host application which will ultimately drop down the boom barriers indicating that the infrastructure is under danger.</li> <li>• If there is any other problem like the rising of the water-level then signals will be given on the bridge that will notify the people that water-level has risen and the host application will also be notified.</li> </ul>
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Technical Outcome year wise (2016-17)			
Title of the project	Outcome in terms of product/process development	Current Status Patent filled (if not filed, then authorized reason),	Socially and Economically Relevance
QR Code Based Smart Card for Personal Health Record	<p>A PHR service allows a patient to create, manage, and control her personal health data in one place through the web, which has made the storage, retrieval, and sharing of the medical information more efficient. A feasible and promising approach would be to en-encrypt the data before outsourcing. Basically, the PHR owner herself should decide how to encrypt and how to allow which set of users to obtain access to each file. A PHR file should only be available to the users who are given the corresponding decryption key, while remain confidential to the rest of users. Furthermore, the patient shall always retain the right to not only grant, but also revoke access privileges when it feels it is necessary. The patient is considered as owner of the system. The system is responsible for creating the access policies based on the user's professional role.</p>	<p>It's pure software module. As per CRI 2016 guidelines, mere software can't be patented. So, Patent is not filed.</p>	<p>Hospitals uses third party services for managing PHR records of patients. Present system is not secure and a big threat to patients personal data. Proposed system provides unique security which will be based on attribute based encryption. So it is completely depends on patient that with whom he want to report accordingly and make sure that only authorized person can see that report.</p>

