

Detail Proposal Form - Ideate Stage of Quarter Finals

i. Registration ID

8863813

ii. Name of Team Leader*

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iv. Contact Number*

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v. Correspondence Address*

SHIVAJI NAGAR, GANGAPUR, AURANGABAD 431109

vi. Name of Organization

No Organization

vii. Address of Organization

No Organization

viii. Team Name*

TEAM GLITCH

ix. Team Member Details*

Name of Team Members	Email Id	Contact Number	Name of Organization with Address (If not working Professional, then write "not working")
Member 1 *	kashikar.rut ooja@gmail .com	8208432078	Cummins collage Pune.
Member 2	anutarakh@ gmail.com	8329191027	Other
Member 3	monika.its4 4@gmail.co m	9970601757	Other
Member 4	pavan.2192 0161@viit.a c.in	8329520371	VIIT, pune
Member 5			

Section-I: Hardware Resource Section

1. Name of Hardware Resources *

- a)SHAKTI Pinaka (E32-A35) on Artix7-35T FPGA,
- b)SHAKTI Parashu (E32-A100) on Artix7-100T FPGA,
- c)SHAKTI Vajra (C64-A100) on Artix7-100T FPGA,
- d)VEGA ET1031 on Artix7-35T FPGA,
- e)VEGA AS1061 on Artix7-100T FPGA,
- f)Other (FPGA Board other than Artix7-35T & Artix7-100T),

If selected Hardware Resources with ARTIX7-100T FPGA, then provide justification for not making use of the Hardware Resources with Artix7-35T FPGA, which may result in an optimal utilization of the Hardware Resources for the innovative solution proposed. (if not applicable put N/a)

If selected Hardware Resources with ARTIX7-100T FPGA, then provide justification for not making use of the Hardware Resources with Artix7-35T FPGA, which may result in an optimal utilization of the Hardware Resources for the innovative solution proposed. (if not applicable put N/a)

I attend a workshop on Shakti and vaga by NIELIT , from their references me and my teammate have

Decided to use ARTIX7-100T(Vajra) it have following reasons-

1. In our innovative idea we are interfacing dozens of sensor, to manipulating all input data, Taking decision from input data at real time and sending information on user phone through internet
2. We required to connect our system with internet, it has an Ethernet module availed on it.
3. It has some extra memory and some cache memory as well which help us to store the data which is observed throughout the day

That why we choose Vajra over other processors.

If selected Hardware Resources as other (FPGA Board other than Artix7-35T and Artix7-100T), then please mention the details of FPGA Board of your choice (like Name of Vendor, Series etc.). (If not applicable put N/a)

If selected Hardware Resources as Other (FPGA Board other than Artix7-35T and Artix7-100T) then select processor ecosystem of your choice among SHAKTI – E32, SHAKTI- C64, VEGA ET1031 or VEGA AS1061. (if not applicable put N/a)

Section-II: Technical Aspects of Innovative Solution

1. Proposal Title

The smart Electric distribution system with intelligent counting method and transparent billing mechanism.

2. Proposal Summary

The electricity theft practices are growing rapidly in India . The illegal connections as well as all the losses in the system are covered by the users themselves. We knowingly or unknowingly pay the percentage of this under the name of TDS (Transmission and Distribution loss). By implementing the system we can overcome the cons in existing system. The meter we installed have to get recharged firstly and then we can consume the recharged units , continuously get updated with the number of units we have consumed and the units left to use . Also the billing will get special deduction for the users which are using electricity frugality . So we can enhance the already installed system as well as save the electricity to the considerable amount of level.

3. Please provide a concept note explaining the technology/ technical & other necessary details

- We will use the already available server of the electricity board with some Specified and new conditions added into it .
- The device will be able to send the SMS to the users on the registered mobile number so user will get alert about the recharges and consumption of units.
- The Web-SMS will be sent via computer over internet only .
- Web SMS Software relies on what is known as an SMS gateway to convert your message into an SMS and distribute it to recipients. An SMS gateway routes messages into mobile phone networks which are then pushed to your customers. This portal allows businesses to safely and quickly send and receive messages via a computer.

4. Briefly state the Objectives and Proposed Approach

[Describe how the proposed innovation addresses the problem. Clarify the current status of the innovation]

The description should cover the following points:

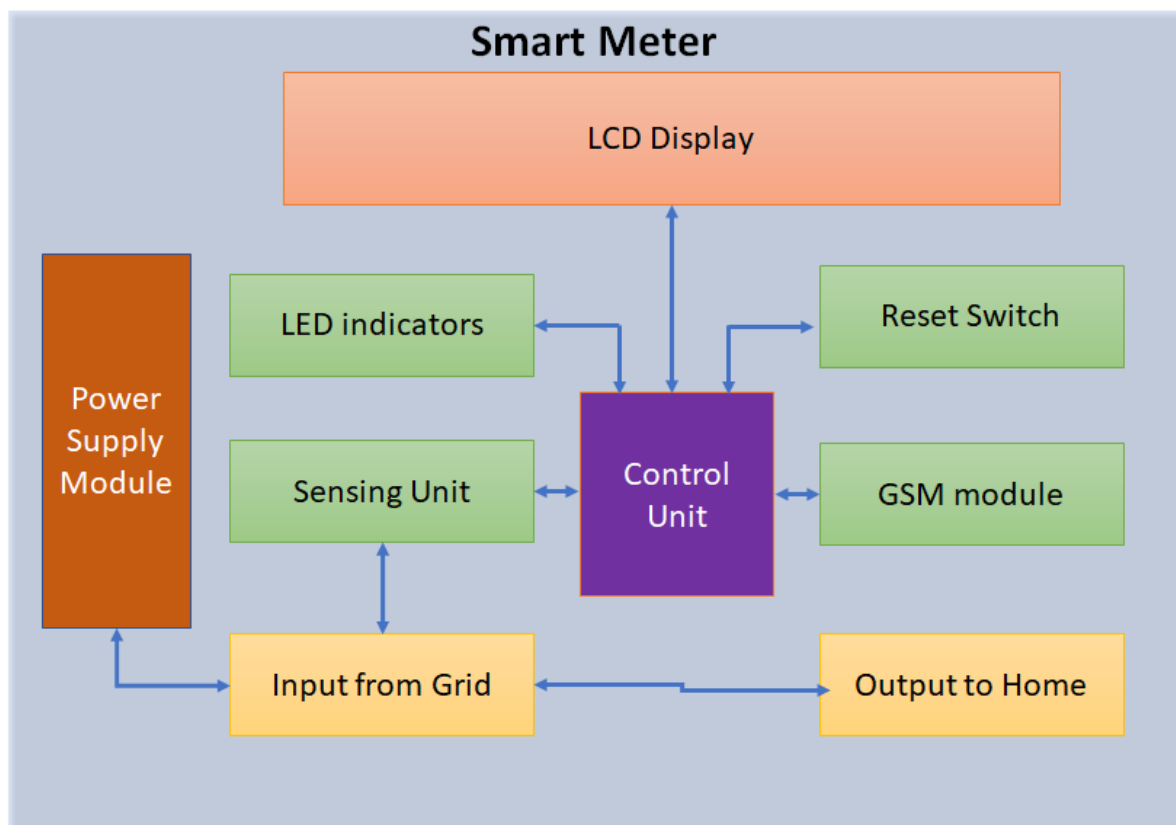
1). Strategy and/or methodology of work.

The meter will provide the pre-paid billing facility to the user .

Our aim is to reduce the false charges and provide the transparency to the billing system .

- We will allow user to recharge their accounts just like we recharge our mobile phone , then the user will be allotted with specific amount of units of electricity .
- The user will be continuously updated with the number of units he have consumed as well as how many units are left for use.
- We will also provide indicators (different colour of lights)to specify how many units left .(so that even people who can not read can also use this meter)
- The user will be given alerts / reminders whenever he/she is about to reach the specified consumption level.
- The supply will be cut off when the maximum limit is reached. Then he can recharge again.
- The product will not need the continuous internet connection, if we provide the internet once in a day or while recharging the meter data of consumption will get directly uploaded on the server.

2). Block Diagram/ images highlighting all the subsystems and supported with a broad details of each block/subsystem.



3). Scope and boundaries of the work, including any issues that will not be covered.

electric meter

- 1) analog meter –
 - i. works on magnetic induction principle
 - ii. consist of aluminium wheel which is connected to tooth wheel.

when the induction occurs at tooth wheel.

and there are gears which are connected to aluminium wheel, also numbers written on them 1,2,3,4. as we consume the electricity wheel moves at faster rate and the readings are displayed on the display.

2. Digital meter:

<https://youtu.be/MZ0LKet4vDs>

-The meter will provide the pre-paid billing facility to the user . Our aim is to reduce the false charges and provide the transparency to the billing system .

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-The user will be continuously updated with the number of units he have consumed as well as how many units are left for use.

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The electricity theft practices are growing rapidly in India . The illegal connections as well as all the losses in the system are covered by the users themselves. We knowingly or unknowingly pay the percentage of this under the name of TDS (Transmission and Distribution loss). By implementing the system we can overcome the cons in system.

4). Data analysis (sample size, data collection)

5. Has any preliminary work been carried out?

Smart Meter National Programme aims to replace 25 crore conventional meters with smart meters in India. Smart meters are connected through a web-based monitoring system which will help to reduce commercial losses of utilities, enhance revenues and serve as an important tool in power sector reforms. EESL business model to roll out smart meters is revamping the current manual system of revenue collection which leads to low billing and poor collection efficiencies.

This meter is designed by genus electronics . Model name is "genus smart meter saksham 145" which is basically **German company**, information about Genus Electronics Genus Overseas Electronics Ltd. is a public limited company incorporated in August 1992 with the purpose of setting up a project for the manufacture of thick film hybrid micro circuits (HMCs) and Surface Mounted Assemblies (SMAs) with latest technology from Germany.

Metering Feature

- >> Single Phase and three Phase direct connected smart meter.
- >> maximum demand kW measurement
- >> TOU metering with active & passive calendars, each having two seasons with up to 8-registers and 8 time zones per day
- >> Last 6 months billing history
- >> Last 35 days load profile data and daily energy profile data
- >> Power Quality information
- >> Voltage sags
- >> Optical port for local communication based on DLMS/COSEM protocol

Communication feature

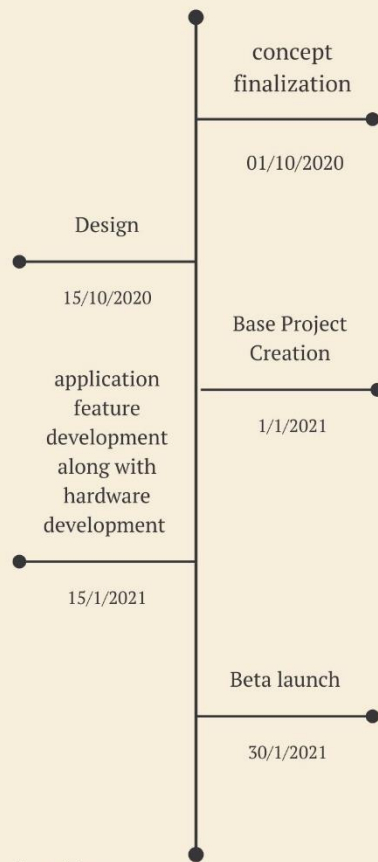
- >> Integrated 2-way communication
- >> DLMS /COSEM based open standard
- >> on demand two way communication
- >> scheduled push to head end system
- >> event reporting to AMI server in case of tamper and anomalies
- >> plug and plat deployment
- >> RTC time synchronization.

control feature

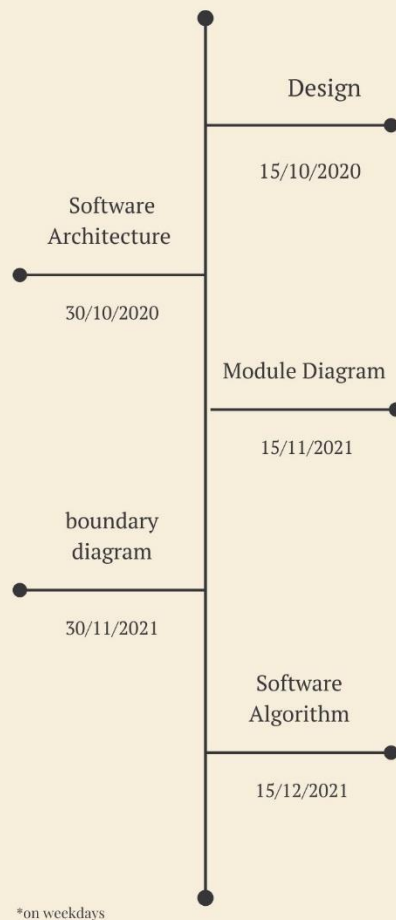
- >> peak load management (PLM) supports two load limits and local relay control
- >> remote connect and detected
- >> power quality management in case of low/over voltage etc.

6. Timelines

TIME LINE



TIME LINE OF DESIGN



7. Intellectual Property

Does the applicant or the applicant company own any IP related to this project. If yes, give details. (Please mention Patent Number, Patent Title and Patent Assignee)

8. Requirement of Equipment/ Accessories/ Components/ Resources other than the Hardware Resources provided under the Challenge

a) Requirement Equipment/ Accessories/ Components

- 1.CT(module name)
- 2.power supply(module name)
3. 3 LED(red yellow red)

b) Quantity

CT->1
PS->1
LED->3

c) Estimated Value

CT->1->1500rs

PS->1->400rs

LED->3->10rs

TOTAL== 1910rs

9. Relevant References.

Section-III: Business Aspects of Innovative Solution

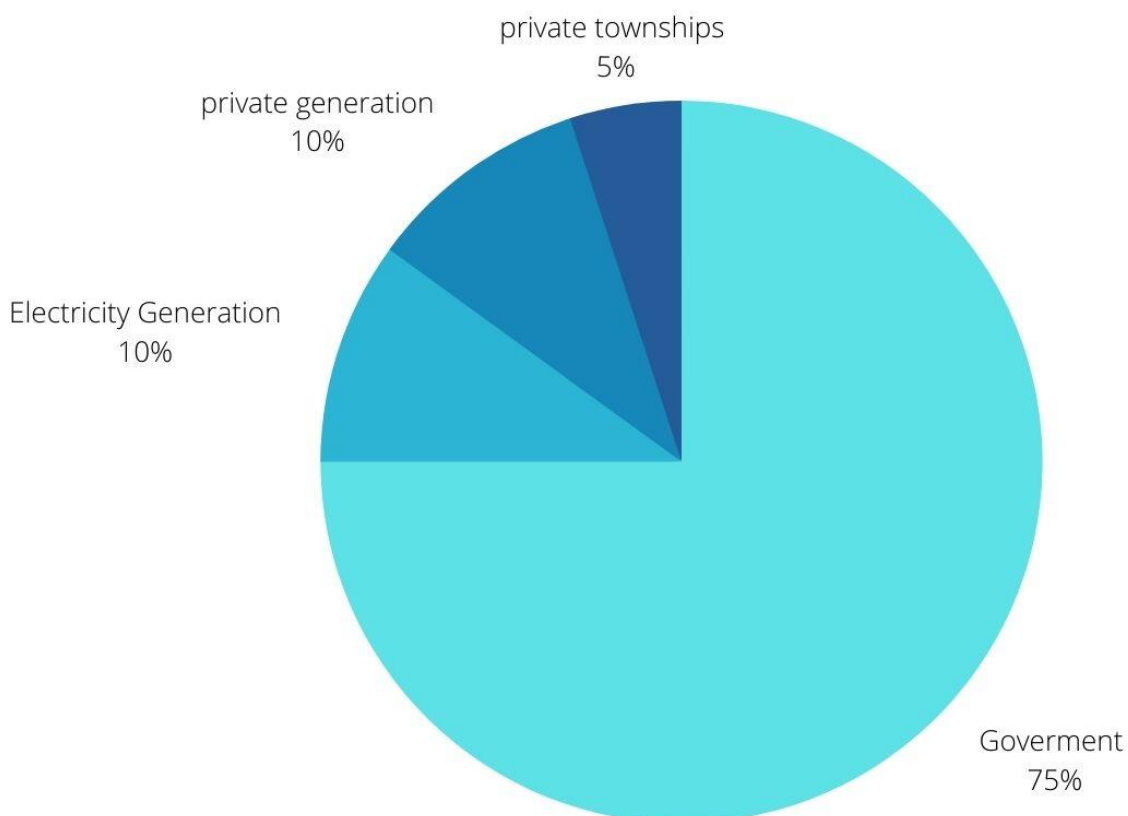
1. Novelty

- Data centralisation
- Prepaid based solution
- In-house development
- Modular design for all market segment
- Low cost solution
- Transparency between customer and service provider

2. Opportunity

- Government (Electricity and Water distribution)
- Private developers in real estate
- Solar Sector (For prepaid solution)
- Private and Government Townships
- Private (Electricity and Water distributors)

3. Market Feasibility



4. Commercialization Roadmap

What do you envision to be the key next step to making impact with this innovation/ commercialize this innovation ? (e.g., Sponsored research support, Licensing, Venture Financing)

What is the time frame?

There are basically two measure part in our project one is software and other is hardware, For building a software we need 2 months. We are starting from scratch to pilot run

For building a hardware we need 2 months. We are starting from scratch to pilot run.

After merging both software and hardware we need one more months for testing of whole product. So we need total 5 months for completion of project.

Commercialization plan should indicate:
1). Market entry strategy & roadmap for scalability.

Market entry strategy is planned distribution and delivery method of goods or services to a new target market. Our distribution strategy consist of

- a) Creation
- b) Establishment
- c) Management of contacts.

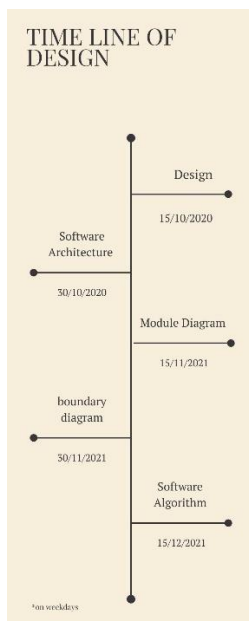
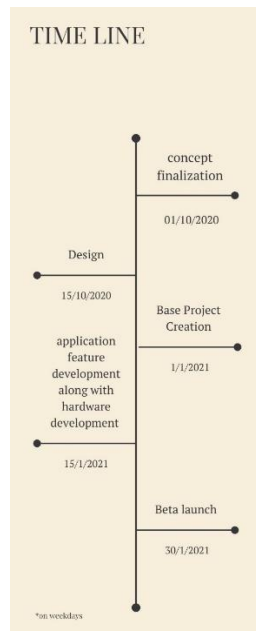
Initially the project will be implemented in a limited area which will be small in size and the two different areas will be considered .For ex. the area where the theft practices are more and the area with minimal losses. The losses saved will be monitored and the reduction will be recorded. Required changes will be done and the system will be installed on the large scale. Firstly the target will be cities then divisions, after the successful installation and analyzation the states will be considered.

Firstly we will calculate the life of the product and the average costing. The costing will be divided into per month money. The difference of the cost of meter and transmission loss will be equal up. We will not only reduce the product costing but also create more transparency in the system.

roadmap scalability :
pilot project

analyses for a month in two diff areas, then implement on large scale . collect the electricity bill from diff areas and compare the TDM and meter cost apportionment .Compare the life of the existing meter and newly installed meter. break the total cost per month and subtract from existing and then subtract TDM also .

2). Timelines and Milestones.



Mile stone:

1. Design (15/10/2020)
2. Software Algorithm (15/12/2021)
3. Beta launch (30/1/2021)

3). Data analysis (sample size, data collection)

Parameter	Our product	Genus product
Processor used	SHAKTI	ARM
Made in	Made in india	Made in Germany
Cost	35000/-	Ablow 20K
Validity	7 years	7 years
Bill	Prepaid bill	Prepaid bill
Size	Compact	Large in size

5. Challenges or Risk factors associated with the project and the proposed mitigation strategies

Risk	Mitigation	Risk rating	
Technical competency towards swadeshi architecture	1)explore analysis 2)workshop by organizer 3) Example solving	less	less impact on project development because teammates from technical background
Sensor availability	Trade of matrix and study and different sensors in market	moderate	sensor impact moderate sensor available with current rating need to trade of current rating as per requirement
Web based application	1)not a part of MVP 2)for final release we will approach third party development	less	impact less added feature after launch of product

Have you established the Link-up with any agency/ organization, other than the Team members, for joint- development of this innovative solution.

We haven't invite any agency for collaboration, but if our idea get selected we will defiantly find some teams for collaboration.

7. Have you received any interest from the end user of this innovative solution

8. Have you approached any other organisation/agency for financial support for the present activity? Please give details

We haven't invite any agency for collaboration, but if our idea get selected we will defiantly find some teams for collaboration

9. Relevant References.