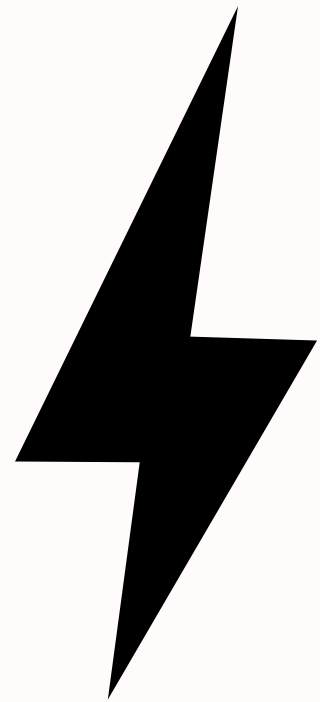




ENERGY  
CONSERVATION



# SRM- VOLT

Conservation of energy using RFID Technology for educational  
institutions

# CONTENT

- 01 PROBLEM STATEMENT
- 02 CURRENT STATE OF TECHNOLOGY
- 03 SOLUTION
- 04 ARCHITECTURE
- 05 CALCULATIONS
- 06 TIMELINE
- 07 BUDGET
- 08 BUSINESS OPPORTUNITIES
- 09 TEAM DETAILS

# PROBLEM STATEMENT

Educational institutions struggle with inefficient energy consumption due to limited visibility and control over usage patterns.

By leveraging RFID technology and software solutions, this project aims to develop a streamlined system to monitor energy usage in various campus facilities.

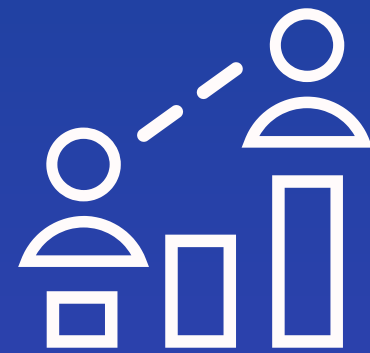


# SOLUTION

This solution merges RFID and software for efficient energy monitoring and conservation in educational institutions, promoting sustainability.



Electricity  
supply  
according to  
head count



Academia  
/Timetable  
incorporated  
with the device



Software for  
easy  
accessibility of  
the class for the  
faculty



Adjusting  
intensity of the  
classroom light  
according to the  
daylight  
intensity

## **COMPLETE OCCUPANCY**

Electricity consumption – 100%

## **ZERO OCCUPANCY**

Electricity consumption – 0%

## **50% OCCUPANCY**

Electricity consumption – 50%

## **DURING EXAMINATION**

Light intensity – increased to 100%

Fan speed – reduced to 50%

## **DURING PROJECTOR CLASSES**

Light intensity– reduced to 50%

# **DIFFERENT SCENERIOS**



# CURRENT STATE OF TECHNOLOGY

- TRADITIONAL SWITCHES FOR ON/OFF
- PIR MOTION SENSOR IN LOBBIES AND CORRIDORS



# CALCULATIONS

## Present Electricity stats

As per TNEB, for the commercial purpose they charge **Rs.12 per unit**

University Building consumes 7.5L to 8L units per month

$$8L \times 12 = 96L$$

### Per Classroom:

Gadgets	Count	Units consumed per hour
Lights	13 to 18	1.1
Fans	10 to 20	1.9
AC	3	4.5
Power sockets and Projector		1
Total units consumed per hour		8.5

# CALCULATIONS

## **Per floor:**

15 classroom x 8.5 units = 127.5 units per hour

## **Whole building (15 floors):**

15 floors x 136 units = 1912 units per hour

## **Per month:**

1912 units x 30 days = 57360 units(wastage calculated per hour in each day for 1 month)



# CALCULATIONS

## After Implementation

UB MONTHLY UNITS CONSUMED = 8L

CHARGE = 96L

APPROX WASTAGE = 57360 UNITS

**CHARGES = 6,88,320**

# TIMELINE

**0 TO 5 WEEKS**

Business plan, Ideation  
and Field study

**PHASE 1**



**PHASE 2**



**6 TO 16 WEEKS**

Hardware and software  
prototype

**PHASE 3**



**PHASE 4**



**22 TO 24 WEEKS**

Minimum Viable Product

**17 TO 21 WEEKS**

Integration and evaluation

# BUDGET PER CLASSROOM

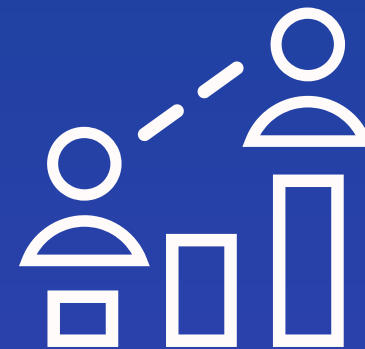
Materials	QTY	Amount
Active RFID Reader	1	22000
Microcontrollers(Raspberry pi4)	1	5000
Connectors and Basic Accessories		3000
relay module	5	2500
Wiring and switches		3000
Potentiometer	1	1500
Total		37000

# BUSINESS OPPORTUNITIES

Provide tailored consulting for the RFID system and expand its market reach beyond education to diverse sectors.



**Custom  
Development  
and Consulting**



**Maintenance  
and Support  
Contracts**



**Expansion into  
Other Market  
Segments**

# TEAM DETAILS

S.No.	Role	Name with Register Number
1	TEAM LEAD	Tarun Sai Ravuri (RA2211027010114)
2	MEMBER	Vikram Balaji Subrahmanyam (RA2211027010079)
3	MEMBER	Tharun Anand Shuresh (RA2111027010043)
4	MEMBER	T.Harshini (RA2111027010107)

# THANK YOU

