Sri Lanka Institute of Information Technology

PROJECT CHARTER

The purpose of this form is to allow 2nd year students of the B.Sc. (Hon) degree program to enlist in the 2nd year project group. The description of the project entered on this form will not be considered as the formal project proposal. It should however indicate the scope of the project and provide the main potential outcome.

PROJECT TITLE	Smart Energy Management System
GROUP NUMBER	PEP_34

PROJECT GROUP MEMBER DETAILS:

	STUDENT NAME	STUDENT NO.	CONTACT NO.	EMAIL ADDRESS
1	W K T Duranga	IT22115584	0701408863	IT22115584@my.sliit.lk
2	P R M Chaminda	IT22549518	0711779853	IT22549518@my.sliit.lk
3	N K D Narangaspitiya	IT22555830	0717068199	IT22555830@my.sliit.lk
4	Jayalath K LH D	IT22052810	0761902962	IT22052810@my.sliit.lk
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PROJECT DETAILS

1. INTRODUCTION

1.1 Purpose of Project Charter:

The purpose of the project charter for your energy management system using IOT is to provide a formal, documented outline that defines the project, its objectives, scope definition, stakeholders, identification, project schedule and timeline, budget overview, risk management, communication plan, approval and signatures, milestones. these are it key elements and purposes typically included in our project charter.

2. BRIEF DESCRIPTION OF YOUR PROJECT

2.1 Project description

The energy management system project aims to develop a sophisticated and efficient solution utilizing Arduino with IOT technology for optimal control and monitoring of energy consumption within our organization. Our project is scheduled to be completed within a 3-month timeframe, commencing on 02/15/2024 and concluding on 05/15/2024. An initial budget of Rs21200.00 has been allocated for the successful execution of the project. The budget covers personnel costs, hardware, and software expenses, as well as any external resources required for the project**.**

2.2 Project objectives

Design, develop, and implement an Arduino-based IOT energy Management system within a 3-month timeframe to achieve a minimum 10-20% range reduction in overall energy consumption across designated facilities. The system will enable real-time monitoring, data analysis, and automated control, contributing to increased operational efficiency and alignment with our organization’s sustainability goals.

3. JUSTIFICATION

3.1 Business Need

In response to the escalating electricity demands in our homes and offices, we’re adopting cutting-edge organic technology for a transformative approach to energy management. this innovative solution aims to reduce electricity consumption, offering both immediate financial benefits and long-term sustainability. our commitment goes beyond cost cutting it’s an investment in efficiency, positioning us as leaders in responsible energy management. This initiative reflects our dedication to innovation, financial prudence, and environmental stewardship, aligning with our vision for a greener more sustainable future.

3.2 Business Impact

The Energy management system designed for home or office environments carries significant business impact and numerous advantages for users. Examples of business impact are cost savings, operational efficiency, environmental responsibility and advantages for users cost reduction for homeowners, convenience, and automation, increased comfort in homes, and Improved productivity in offices.

4. SCOPE

4.1 Description of the Solution:

Initially, the implementation will focus on a pilot phase in a select number of homes and offices within our organization. this phase will involve the installation and configuration of the EMS to assess its effectiveness in diverse settings. feedback from users during this phase will inform any necessary adjustments or enhancements.

4.2 Main Expected Outcomes of the Project:

The primary goal of achieving a significant reduction in energy consumption by 10-20% across homes and offices involved in the project is to pursue substantial cost savings and improved efficiency. This outcome is critical for addressing the increasing challenges posed by rising electricity costs and the environmental impact associated with excessive energy use. EMS will deploy smart technologies to automate the control of electrical devices and systems. dynamically adjusting settings based on occupancy, usage patterns, and energy demand, the system ensures that energy is utilized efficiently. this not only reduces waste but also contributes to a more responsive and adaptive energy management approach.

4.3 Boundaries:

The project’s primary focus is on optimizing energy management within residential and commercial spaces. It does not extend to industrial applications or large-scale manufacturing environments. this project focuses on seamless integration with standard electrical infrastructures while excluding specialized systems. operating within budget constraints, it strives for maximum impact, with additional features subject to approval. the primary focus is on energy consumption optimization, excluding broader environmental factors to maintain concentrated efforts.

5. BUDGET & TIME ESTIMATIONS

5.1 Executive Milestones:

This project is a key achievement that project leaders closely watch. These include finishing development phases, adding important technologies on time, and getting regulatory approvals. milestones like a successful pilot or adding real-time monitoring show progress and help leaders make decisions that align with project goals.

PROCESS	FEB 15 W1	FEB 26 W2	MAR 4 W3	MAR 11 W4	MAR 18 W5	MAR 25 W6	APR 1 W7	APR 8 W8	APR 15 W9	APR 22 W10	APR 29 W11	MAY 6 W12	May15 W13
Planning and Project Kickoff Gathering the equipments													
Initial documentation													
Assemble equipment for phototype													
Testing phototype													
Finalize document													
Finalize document													
Finalize phototype													
Final Testing													
Project Closure													

5.2 Budget Estimation:

Object Code	Budget Item	Total
1	Development cost	Rs.16500
2	Printing cost	Rs.200
3	Internet bill and other utilities	Rs.2000
4	Transportation of things…..	Rs.1500
	Total	Rs.21200

6. ASSUMPTIONS, CONSTRAINTS AND RISKS

Assumption: We are making this primarily as an architectural representation, which may be subject to some variation in practical applications. this project faces challenges including data security, potential technical hurdles, changing energy regulations, user acceptance, and external economic uncertainties. Proactive management is key to addressing and mitigating these risks throughout the project.

7. WORKLOAD ALLOCATION

MEMBER 1	IT22115584 - W K T Duranga

designing systems architecture and implementation of Hand Clap sensor

1. define requirements of necessary circuits, sensors, wires, switches, and other parts
2. Those things are applied to the relevant places on the architectural board.
3. This sub-function creates the sensor system for a hand clap command that can be turned on and off when needed.it is very effective as a smart energy management system.

MEMBER 2	IT22549518 - P R M Chaminda

Motion sensor-related system

1. designing the circuit diagram related to using motion sensor part
2. identifying what the job is in a motion sensor- the motion sensor needs to detect the motion and then the sensor generates a signal and communicates with the control unit.
3. Then need to write down the code and fix the circuit using an uno board.

MEMBER 3	IT22555830 - N K D Narangaspitiya

temperature control sensor-related system

1. Comprehending the sensor circuit diagram and connecting the wiring part
2. In a room with a temperature of 30c, which we assume, when the temperature gradually increases above 30c,the sensor is designed to switch the room temperature back to 30c.

MEMBER 4	IT22052810 - Jayalath K LH D

luminosity (motion type) sensor-related system

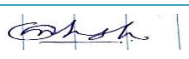
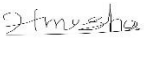
1. What this sub-function does is that when an iron is consumed by someone, this sensor will be used to control the standard temperature without allowing the electrical device to go over head.
2. generating the Arduino code for related sensor.
3. Deploy the code part and final testing for the working environment.

MEMBER 5	

DECLARATION

"We declare that the project would involve material prepared by the Group members and that it would not fully or partially incorporate any material prepared by other persons for a fee or free of charge or that it would include material previously submitted by a candidate for a Degree or Diploma in any other University or Institute of Higher Learning and that, to the best of our knowledge and belief, it would not incorporate any material previously published or written by another person in relation to another project except with prior written approval from the lecturer of the module and that such unauthorized reproductions will construe offences punishable under the SLIIT Regulations.

We are aware, that if we are found guilty for the above-mentioned offences or any project related plagiarism, the SLIIT has right to suspend the project at any time and or to suspend us from the examination and or from the Institution for a minimum period of one year".

	STUDENT NAME	STUDENT NO.	SIGNATURE
1	(GROUP LEADER) W K T Duranga	IT22115584	
2	P R M Chaminda	IT22549518	
3	N K D Narangaspitiya	IT22555830	
4	Jayalath K LH D	IT22052810	
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