IoT-enabled Grid Monitoring and Management System for EV Chargers in Residential Applications

Project Group 08

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Objectives

- Develop a system for real time data collection and analysis.
- Upgrade existing digital meters with an additional module.
- Create a backend server for data management.

Methodology

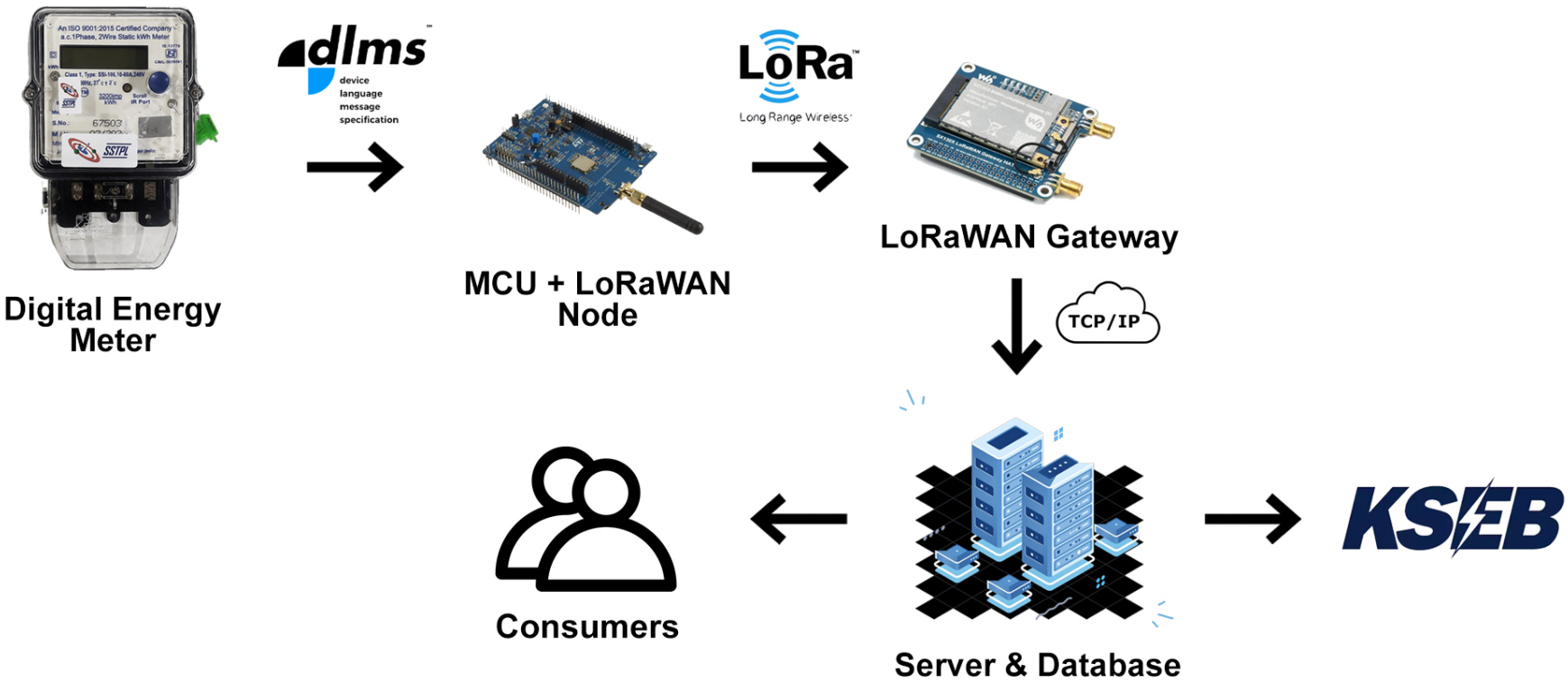

Figure: Proposed Model

Components

Sl. No	Component	Cost
1	STM32F103C Microcontroller	₹649.00
2	SX1278 LoRa Module x2	₹800.00
3	Infrared Sensor	₹200.00
4	3.7V Li-ion Battery	₹500.00
5	Raspberry Pi Zero	₹1,649.00
	Total Cost	₹3798.00

Table: Component List

Work Plan

Sl. No	Task	Period	Status
1	Literature review	Aug-Sept	Done
2	Hardware Procurement	Sept	Ongoing
3	Design and implement a prototype to collect energy meter data	Oct	Ongoing
4	Design and implement a LoRaWAN gateway	Oct-Nov	To be done
5	Create a backend server for data collection and analysis	Jan-Feb	To be done

Table: Project Work Plan

Progress

- Literature Review Done.
- Bought the Microcontroller and IR Sensor for Data Acquisition.
- Researching cheaper alternatives for LoRaWAN Gateways.
- ChirpStack - open source LoRaWAN Network Server.

THANK YOU