SYNOPSIS

YEAR/BRANCH AND DIVISION: BE(E&TC) DIV: 3   **GROUP NO.:** C15

TITLE: PREPAID ENERGY METER AND THEFT DETECTION

OBJECTIVES:

- To built the project smart electricity meter aims at making the energy billing prepaid.
- To made user more conscious, as the system is prepaid. thereby reducing energy wastage.
- To track and record the use of electricity in customers' homes by smart electric meters.
- To reduce traditional billing contains wastage of time and resources as well, in auto billing system there is no more need of the manual meter readings and bill slips.

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INTRODUCTION:

The Internet of Things (IOT) is inter communication of embedded devices using Networking technologies. The IOT will be one of the important trends in future, can affect the networking, business and communication. In this paper, proposing a IOT based Prepaid energy meter. Most of the energy meters are designed to bill as per the units of energy consumed. These meters need to be manually read by people in order to provide monthly/quarterly bills. We here propose a IOT based smart electricity meter. It also allows the operator to recharge the user account using IOT. The system first accepts account recharge and allows to use only limited units of energy as per recharge and then cuts off the supply. It also consists of a ESP8266 module that allows the operator to recharge the meter remotely using email message service. This puts forward an innovative electricity billing and "use as needed" electricity usage scheme. It also eliminates the need for

manual electricity meter reading tasks. This meter are digital meter with short circuit protection, Over voltage protection, Anti-Theft detection.
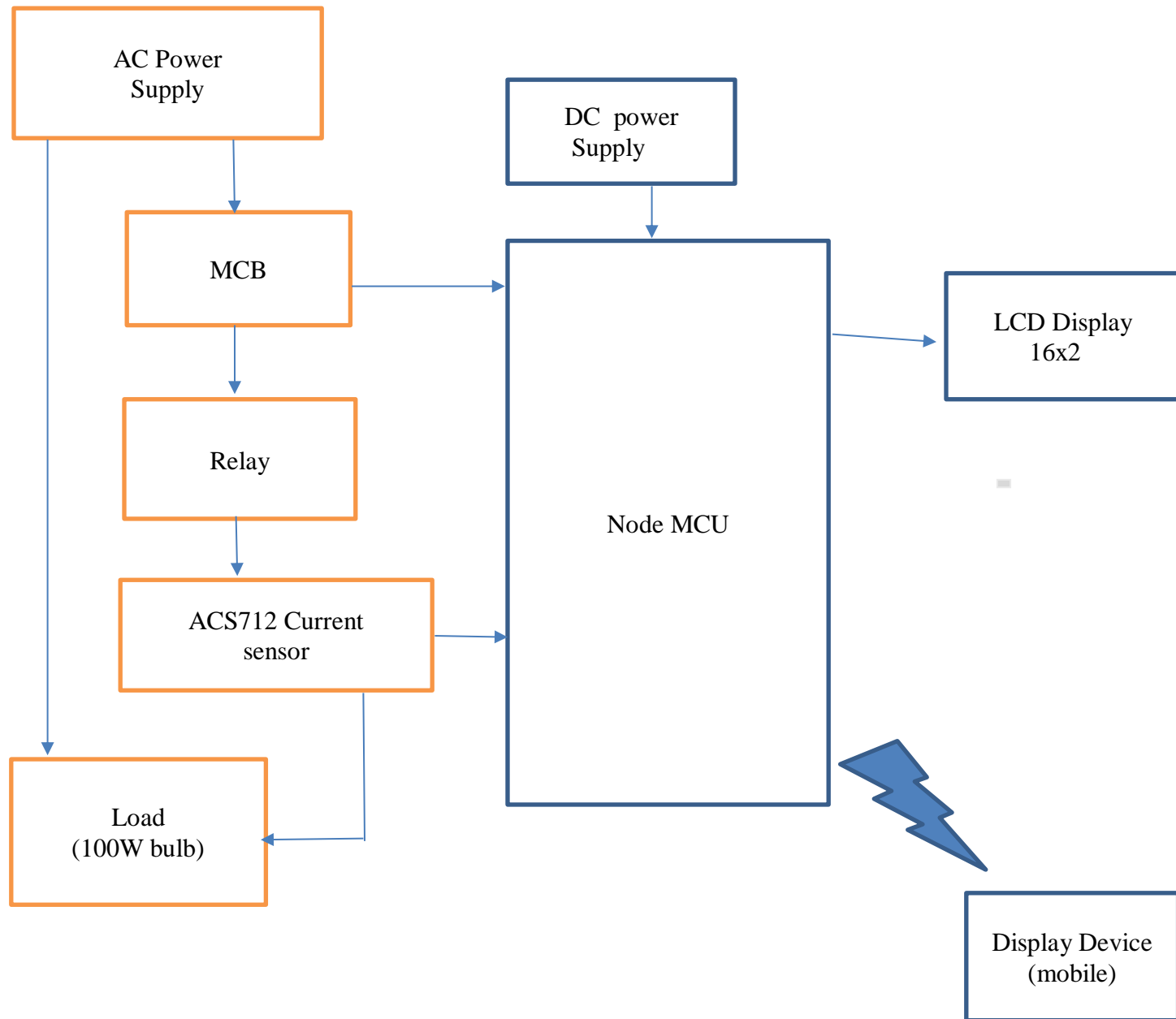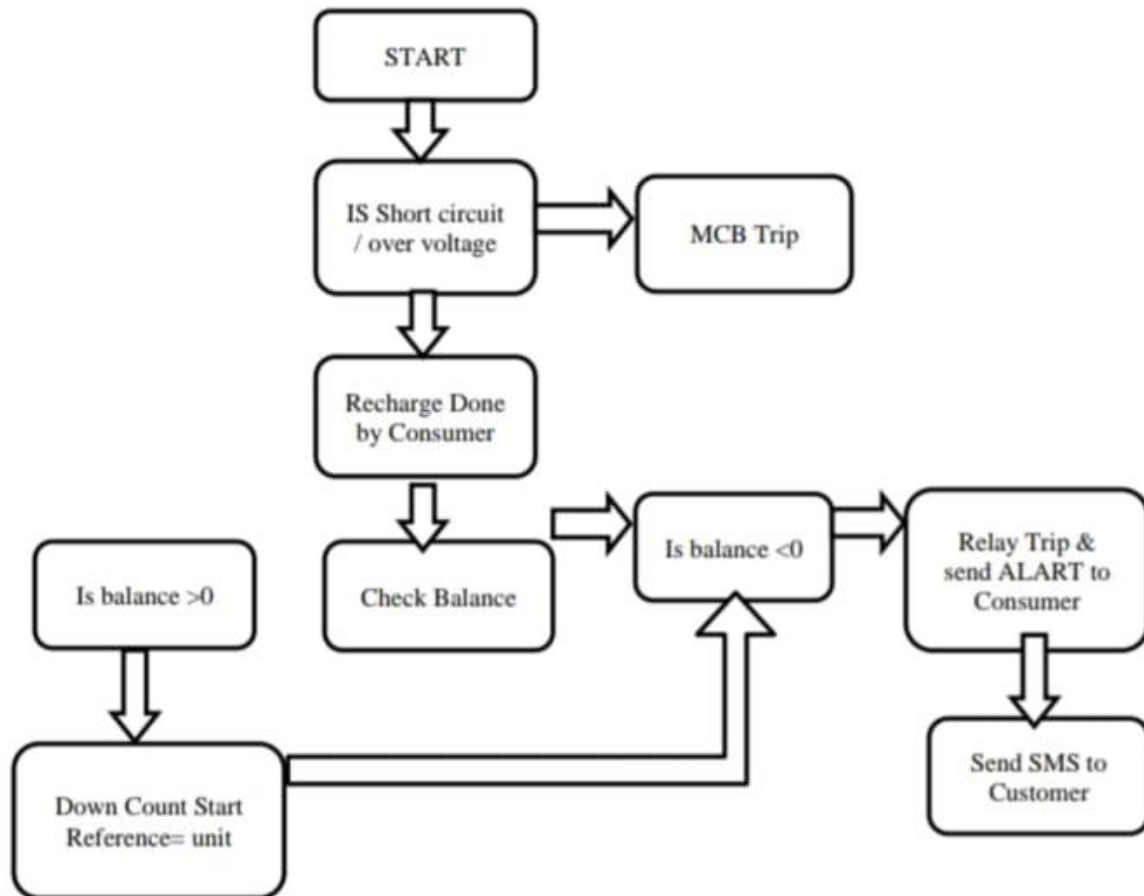
BLOCK DIAGRAM:

Figure 1: **Block Diagram of Prepaid Energy Meter**

Flow Graph:

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                    ┌──────────────┐
                    │    START     │
                    └──────┬───────┘
                           │
                           ▼
              ┌──────────────────┐         ┌──────────────┐
              │  IS Short circuit │────────▶│   MCB Trip   │
              │   / over voltage  │         └──────────────┘
              └──────────┬───────┘
                         │
                         ▼
              ┌──────────────────┐
              │  Recharge Done   │
              │  by Consumer     │
              └──────────┬───────┘
                         │
                         ▼
┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────────┐
│ Is balance >0│   │ Check Balance│──▶│ Is balance <0│──▶│  Relay Trip &    │
└──────┬───────┘   └──────────────┘   └──────────────┘   │  send ALART to   │
       │                                                  │  Consumer        │
       │                                                  └────────┬─────────┘
       ▼                                                           │
┌──────────────┐                                                   ▼
│Down Count Start│                                        ┌──────────────┐
│Reference= unit │                                        │ Send SMS to  │
└──────────────┘                                          │ Customer     │
                                                          └──────────────┘
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ADVANTAGES & APPLICATIONS:

- It is highly accurate as the whole idea of reading the units and then billing automatically.
- Consumer cannot escape from paying the electricity bill and the State Electricity Board gets free from debts.
- Wastage of energy is diminished as now only the required energy will be consumed as allocated.
- The power grid can monitor the overall energy consumption and prevents from any damages to the circuit.
- It's application includes shopping mall, residential township, comercial bulidings, etc..

CONCLUSION: Smart energy meter with reading indication has been developed by using GSM. Which is more useful to consumer for billing and maintaining less bill payment and it decreases the human needs for paying and other issues related to billing.

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