Mini-Project 1 Page Synopsis (back-to-back)

Mini-Project Batch No.	:	BE/ECE/Sem-6/Section-A/ Batch Group No- A1	
Academic Year	:	2020-21 , Even Semester, 2018-22 Batch	
Course Name & Code	:	Mini Project / 18EC6ICMPR	
Title of the 6thSem BE mini-project work	:	Multiple city load shedding system	
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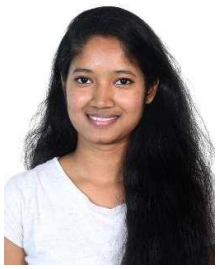
Section in-charge	:	Dr. Shashi Raj K	Sign :
Mini-Project Coordinator	:	Dr. M. Roopa	Sign :
Field / area of mini-project	:	Embedded Systems and IoT	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Abstract: The mini-project work undertaken by us involves the design & development of Multiple cities load shedding system for delivery of power when demand for electricity is greater than the primary power source can supply. Scheduled load shedding is controlled by way of sharing the available electricity among all its customers. By switching off parts of the network in a planned and controlled manner, so the system remains stable throughout the day, and the impact is spread across wider base of customers. Load shedding schedules are drawn up in advance to describe the plan for switching off parts of the network in sequence during the days that load shedding is necessary. when load shedding is required, the networks are switched off according to the predetermined plan, to ensure that, as far as possible, customers experience load shedding in accordance with well-informed schedules. In exceptional circumstances, if scheduled load shedding is not achieving the required load reduction or an unexpected fault occurs, then System Control Centers will shed load outside the published schedules by using emergency switching in order to protect the network. Such events are rare, but if load shedding is declared, then all customers can expect to be affected at any time, and the planned schedules may not necessarily apply. During load shedding no matter which area, homes and cities are in total blackout. All loads are cut off and we have no means to meet our electricity demands during these times. Through this project we aim to limit the accessible load. Instead of cutting the entire load during load shedding period, a small portion of load is permitted to be used during the load shed period. We use IoT for a better implementation of this form of load shedding so that there are no complete blackout and people can do their basic needs.

Introduction – When there is more demand for power to multiple cities than the available power in the primary power grid, then the load shedding system comes in handy. A load shedding system is used to distribute power from the source grid to everyone by scheduling the supply of power at the possible interval of time to all cities. The system is designed to work flexibly as per the requirement predefined by the human controller in charge. The old fashion complex programable or hard-hand switching technics can now be made easy as simple as a touch-controlled system. The system status can be checked and also can be controlled by a simple GUI from anywhere by connecting through the internet. The system is more reliable as every status of the system is notified to the operator on his mobile phone if he is authorized. By this, we can avoid/reduce visiting the power plant every time and also in the pandemic situation this work can also be done as work from home and avoid humans to interact outside the home.

Objective – We have taken this project as a challenge where we schedule the load shedding process when and as required. This system manages the power in critical demand situations so that people can do their basic needs of the daily activity without any interruption due to power cut.

Proposed methodology –

- Requirements: Project requirements are analyzed and documented.
- System Design: Make a detailed plan on how to accomplish design and project goals.
- Implementation: Implement the project plan and set standards to measure progress.
- Verification: Verify the system by doing test cases and some modifications can be done.
- Maintenance: System can be maintained at regular intervals if necessary.

Proposed block diagram – Consists of a hardware unit Arduino UNO, Node MCU, Buzzer, LED, Relay, Power supply, Display and RTC as shown in fig.1 below

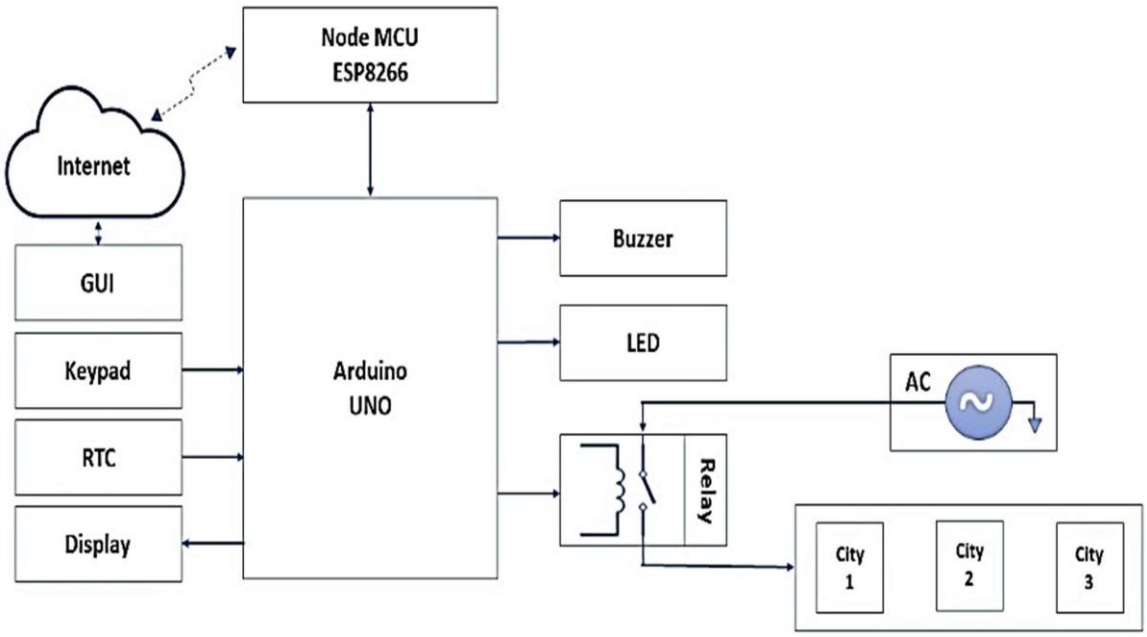

Figure 1:Block diagram

Working: The working flow of the system is as shown in the fig.2. When the system is first booted, the user asked to select if it has to operate in normal condition or switch to scheduled load shedding mode. If operating in normal mode then all cities receive power from station or else in load shedding mode the cities at the defined time will receive the power from the grid. All the status is updated in system display, also is updated to blynk server and the controls can be changed by the keyboard in the system or through the blynk app. The status of the system will be sent as notification/email to the in-charge controller.

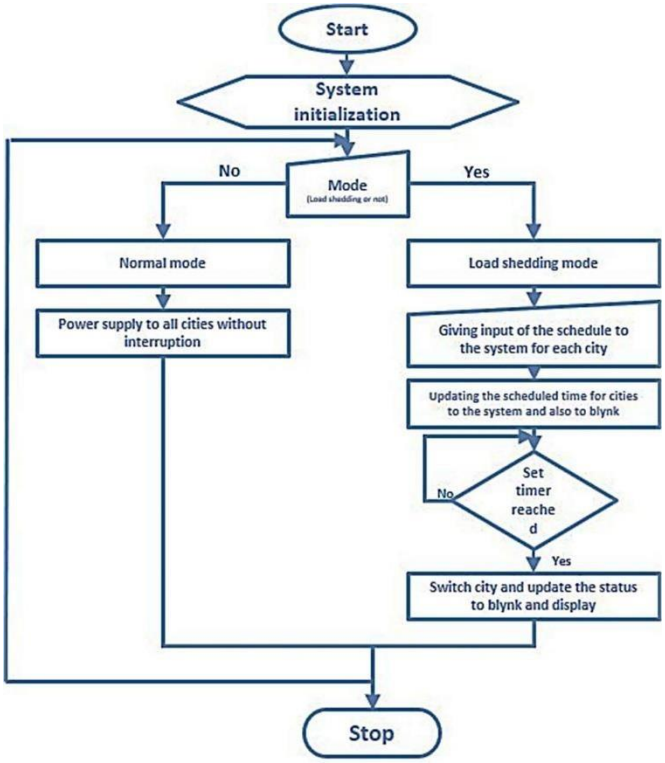

Figure 2:Working flow chart

Tools used (hardware/software): C on the Arduino & Node MCU, Arduino IDE, and Blynk app.

Applications:

- Load Shedding Plays Nicely with Other Traffic Management Tools.
- It's used in the power distributions in critical power demand.

Expected outcome: If the project is successfully implemented, the load shedding system can be installed in the source grip power plants and also in needy similar systems.

Flow-line:

- April 3nd week: Case study, topic search, finalization, approval from guide
- April 4th week: Starting of mini project, design and implementation
- May 2nd week: Programming analysis and test run, prototype building
- June 2nd week: Final implementation with demo and presentation
- June 4th week: Mini project exhibition