ENERGY MANAGEMENT IN HOME

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Abstract- **Energy management system applied both for utlilities and end customers as a mean to supervise electricity usage and obtain energy saving. The approach also does a benchmarking on existing system and appliances, together with the increasing usage of in the newest smart grid.**

Index Terms- **Energy management in home , HMEs, DR, IC**

I.INTRODUCTION

Home energy management system are growing sector in the modern era of the smart grid and homes. HEMS can provide value to the home owner and the utility by saving money and energy by providing a mixture of control, scheduled and user information HEMS can also support utility demand response (DR) program and reduce peak demand. The system can receive DR signals for the utility and create schedules based on the signals, the system goals and the house owner's priority. The integration of home device with HMEs does present some changes and it requires collaboration from homeowners, utility and the industries. Smart and efficient machine learning based algorithm need to be developed to understand the pattern of energy consumption of the house owners and make an adjustment to save energy and reduce peak demand.

II.BLOCK DIAGRAM

In fig 1.1IN the block diagram,it sensor and 5VDC are connected to the timer IC CD4017 which receives signal from the sensor and control the relay to operate the light which was connected to the switch . IR sensor is connected with light and CD4017 the light is further connected with switch and the switch is connected with relay the CD404 is connected with 5V DC source.

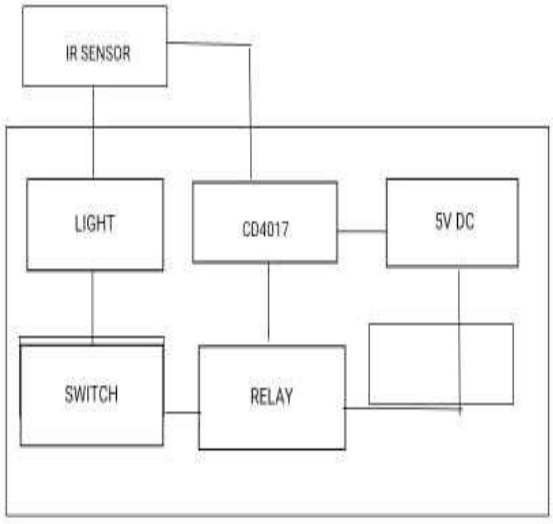

Fig1.1BlockDiagramof Alcohol detector

III. CIRCUIT DIAGRAM OF ENERGY MANAGEMENT IN HOME

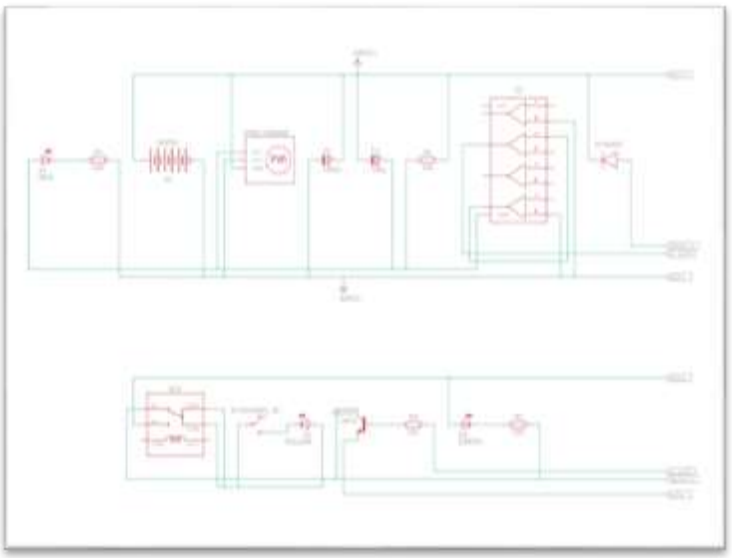

Fig1.2 CIRCUIT DIAGRAM OF ENERGY MANAGEMENT IN HOME

In this circuit piezoelectric plate is connected in series and two wires from this piezoelectric plate is connected to the bridge rectifier's input and the output from bridge rectifier is connected to the battery. The stored energy from the battery is distributed to the USB and the bulb and makes the light glow.

IV.PROTOTYPE

Determining optimal maintenance schedules and production plans is not easy because of the number of alternatives to assess. As the exact electricity demand of each forthcoming day is unknown and depends on a large variety of factors (season, weather, holidays, etc.), this leads to the need of multiple uncertainty scenarios. Additionally, the increasing proportion of renewable energies in today's energy mix makes things more complicated for an utility company, because it has to feed the energy of third-party solar or wind power plants into its electricity networks and regulate its own power plantsaccordingly.weather, holidays, etc.), this leads to the need of multiple uncertainty scenarios. Additionally, the increasing proportion of renewable energies in today's energy mix makes things more complicated for an utility company, because it has to feed the energy of third-party solar or wind power plants into its electricity networks and regulate its own power plantsaccordingly.

It is a tactical model, neither considering short-term operational restrictions (like intraday load following) nor containing strategic decisions (like adding new power plants). However, the proposed model allows a generic formulation of other concerns like electricity network stability, safety consider- ations, availability of staff and tools, as well as legal restrictions. All of these limitations can be expressed as mathematical constraints.

Our solution combines a constraint programming formulation of the problem with several heuristics. We decompose the problem and develop different solution strategies ranging from very simple approaches up to sophisticated ones, which are driven by lower bounds we develop. Additionally, we present optimization techniques to improve our obtained results

V. RESULT CONCLUSION

The application of HMES is growing in the smart grid and smart homes significatnt amounts of energy are consumed by dwelling s showing the importantnce of improving energy eficiency in residential building. In this

review, the desired capabilities and expected challenges for HEMS were identified and discussed. HEMS need to be able to monitor and control devices regardless of their communication protocols. They also need to support DR which requires significant coordination and collaboration between HEMS vendors and utilities. These systems need to include some intelligence to provide feedback to users and help them save money and energy by adapting their energy consumption behavior.

REFRENCES

[1] https://youtu.be/c_dne6rrMCA
[2] https://youtu.be/h7KIASrmwic