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Mastermind Energy Management And Room Monitoring Project

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Abstract:

This project aims at optimal utilization of electric energy. With the rapid increase in the population, energy consumption has increased rapidly in the recent years. This is high time to think about how to use the energy resources efficiently. This paper finds how to nullify these wastages and save up to 30%of the total energy resources.

1.Introduction

Our project aims at optimal utilization of electric energy. With rapid increase in the population, energy consumption has increased rapidly in the recent years. It is high time that we need to think on how to use the energy resources efficiently.According to the current survey,if we are able to nullify these Wastages we can save upto $1 billion. Therefore we worked to find a solution for this problem and came up with this idea. The idea is to develop a mastermind system that will automatically detect if there is any person in the room or not, and if there is any person in the room it will turn on the energy resources as pr our requirements and if there is no person in the room, it will turn off all the energy resources. This can be achieved in two ways-
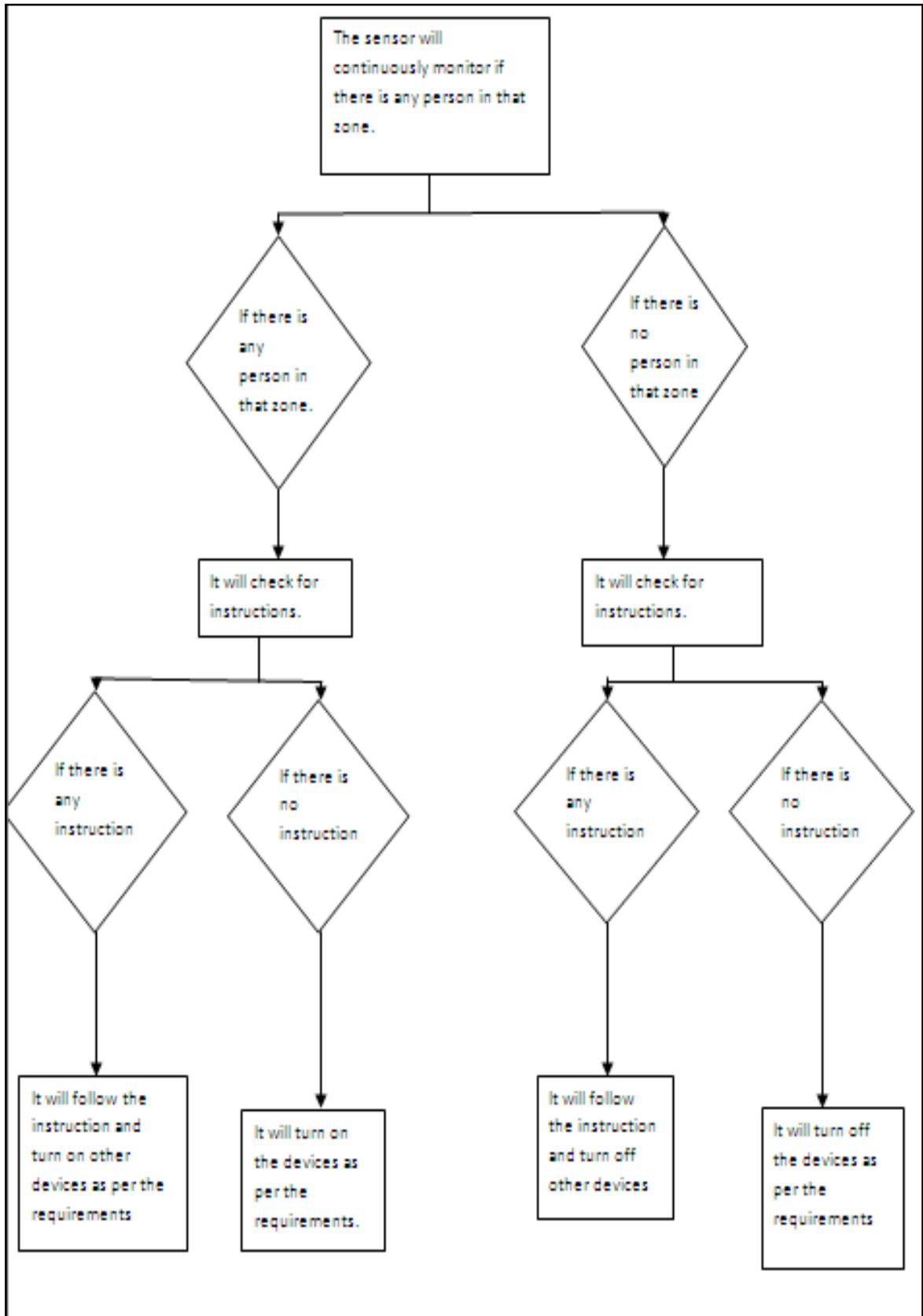
- It can be done using Image Processing Toolbox in mat lab.
- It can be done using an embedded system. It consists of a dedicated hardware consisting of sensors and microcontrollers.

In our project we have discussed how the hardware approach can be designed to perform the desired task.

The mastermind system will contain IR Sensors, sharp sensors to detect if there is any person in that zone and calculate the distance, The sensors will be connected to the microcontroller, and the microcontroller will be programmed according to the requirements.

The working can be explained as-

In our algorithm we have used the term Instructions For those devices that do not require human presence like Refrigerator ,charger, etc, and we have used the term requirements for devices like fans, lights, that we switch on only when there is someone present in the room.

The sensor will continuously monitor if there is any person in that zone.

If there is any person in that zone.

If there is no person in that zone

It will check for instructions.

It will check for instructions.

If there is any instruction

If there is no instruction

If there is any instruction

If there is no instruction

It will follow the instruction and turn on other devices as per the requirements

It will turn on the devices as per the requirements.

It will follow the instruction and turn off other devices

It will turn off the devices as per the requirements

We can modify the algorithm according to our needs. In places like our homes and universities, where it is difficult to differentiate between persons and things, we can use two the sensors on both sides of the gate. The sensors will track of the number of persons currently in the room and it will switch off all the energy resources if the counter keeping track of number of persons in the room comes to zero.
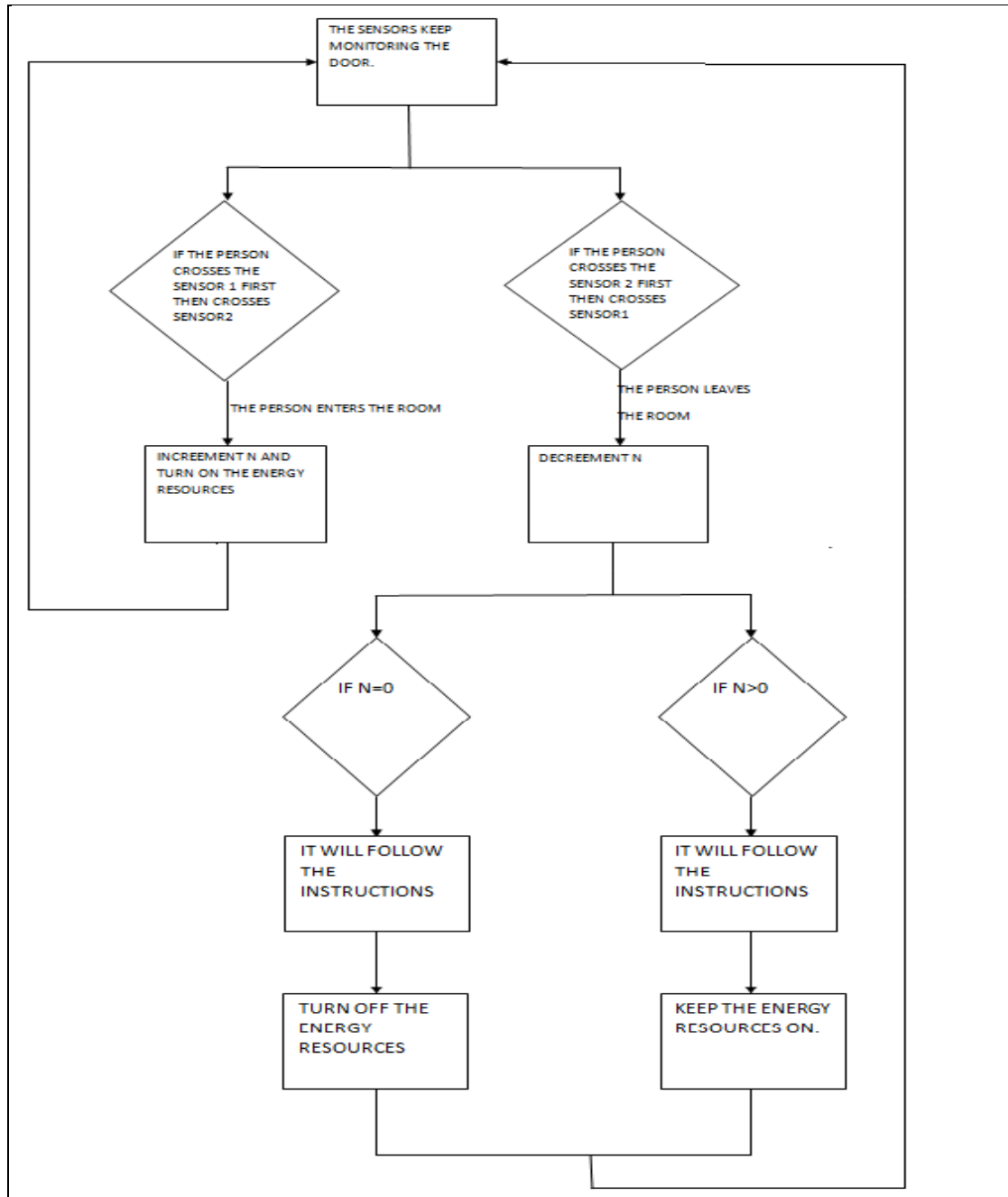
In places like auditorium, theatres the implementation of second algorithm can be modified by using sharp sensors. The working can be explained as-
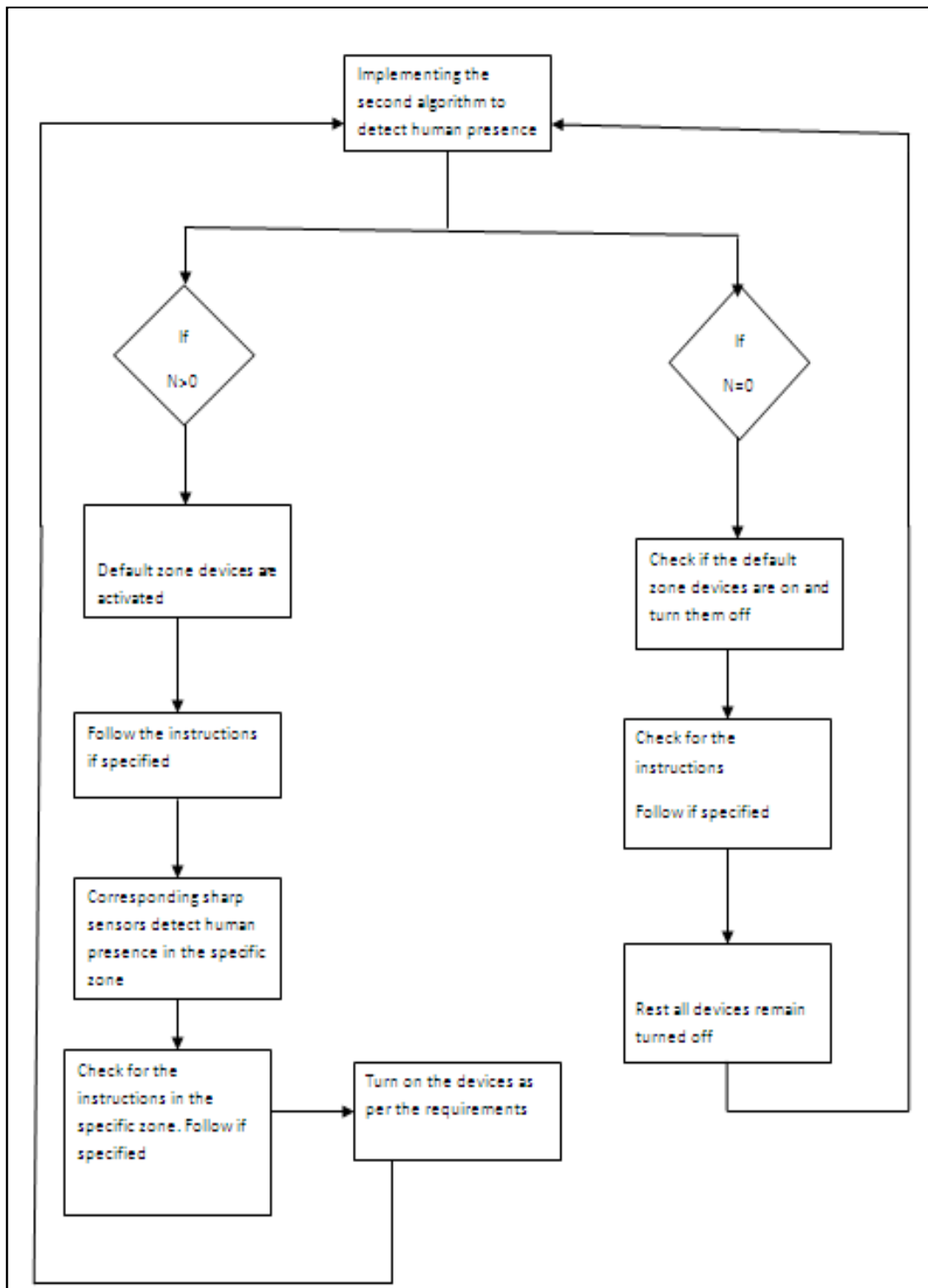
2.Important Parameters

- Cost-The initial cost of the system is not too much. The sensors and the controllers are available in market for 10$ or less. With the advancement in the technology the prices will be further reduced in coming years, so the initial cost is not much and the money spend will be easily recovered back 3-4 months as it will save a huge amount of energy and money.
- How does it support the mission go green?

Certainly it's a big step towards go green project. The project will save a huge amount of energy resources and these resources can be used for other purposes and leading the company to greater heights

3.Acknowledgement

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4.Reference

1. Optical Sensors: Basics and Applications, Author: J Haus

2. Embedded Systems : Design and Applications, Author: Steven F Barret

3. Embedded Systems, Author: K V Shibu