POWER CONSUMPTION MONITORING USING HOME AUTOMATION

Submitted in partial fulfillment of the requirements
of the degree of

Bachelor of Engineering

in

COMPUTER ENGINEERING

by

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CERTIFICATE

This is to certify that the project Synopsis entitled ***"Power Consumption monitoring using Home Automation"*** is a bonafide work of ***"Bhavana Gupta (15102047),Siddhesh Dalvi (15102070), Anish Salgia (16202005) , Daisy Maniar (16202011)"*** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of ***Bachelor of Engineering*** in ***Computer .***

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Abstract

Controlling the appliances remotely even when the users are outside their properties,this system is all about a low cost,simple and small sized controller that helps the users do the controlling.The users of this system can control the appliances by using cell phone through global system for mobile communications(GSM)technology.For activities like controlling from remote locations cellular communications are best solutions.For controlling appliances from distance SMS(Short message service) technology can be used.Remotely the system allows the users to control and monitor the appliances by sending commands in the form of SMS message and also receive the status of the appliances.The Infrared(IR) is to control the sensored devices like T.V,Air Conditioner and other appliances from about 10 meters away.The smart remote can include all infrared remote controls in the room or office into users cell phone based on Android Platform.Through android application one can configure their remotes into smart remote application and then control the appliances through his/her smart phones and eliminate the controllers spread across the home or office.Though Application the users can also monitor and obtain a detailed report about the power consumed by each and every appliance controlled.

Introduction

Nowadays, there is a growing demand of automation and intelligent systems so that it leaves us with less human intervention and smart decision making devices.The term Home Automation means to automate our homes or offices.As we all know ,the basic concept of Home Automation is to control all the appliances in a controlled environment.The controlled environment can be offices and residences.By this we can have access of the appliances with just a single click.With the growing demand, comes the growing competition which has forced the competitors to come out with more intelligent,efficient as well as user friendly models.Our topic deals with the same idea as base concept and also includes monitoring of power consumed by the appliances.It will regulate our lights, heators, AC, and other home appliances and devices, turning them on and off. The system will not only do the tasks of switching the devices on or off but will also send status of the appliances back to the users.The status will be stored and a report of the same will be generated that can be accessed by the user at any point of time .

Objectives

Our project is aimed at developing a system based on sensors and GSM to capture many things.Our aim is to develop a system to provide people a convinient,comfortable and intelligent living environment.The main objective is to develop a system for fair dealing with better management.It will also be remotely accessed.This is the spirit and main driving force behind this proposed system.

Literature Review

We referred/went through a number of papers,mostly all were implemented using communication technology(GSM) as the main technology.Whereas some also used internet and speech recognition techniques also. All focused on functionality of GSM protocol and serial communication and AT commands for development. We also reviewed a paper of IR Remote Controller that used Ir as to interact with the devices. A system controlled by the cell phone completely through GSM was also accessed.Remotely the system allowed the system owner to control and monitor the appliances via users cell phone.

Problem Definition

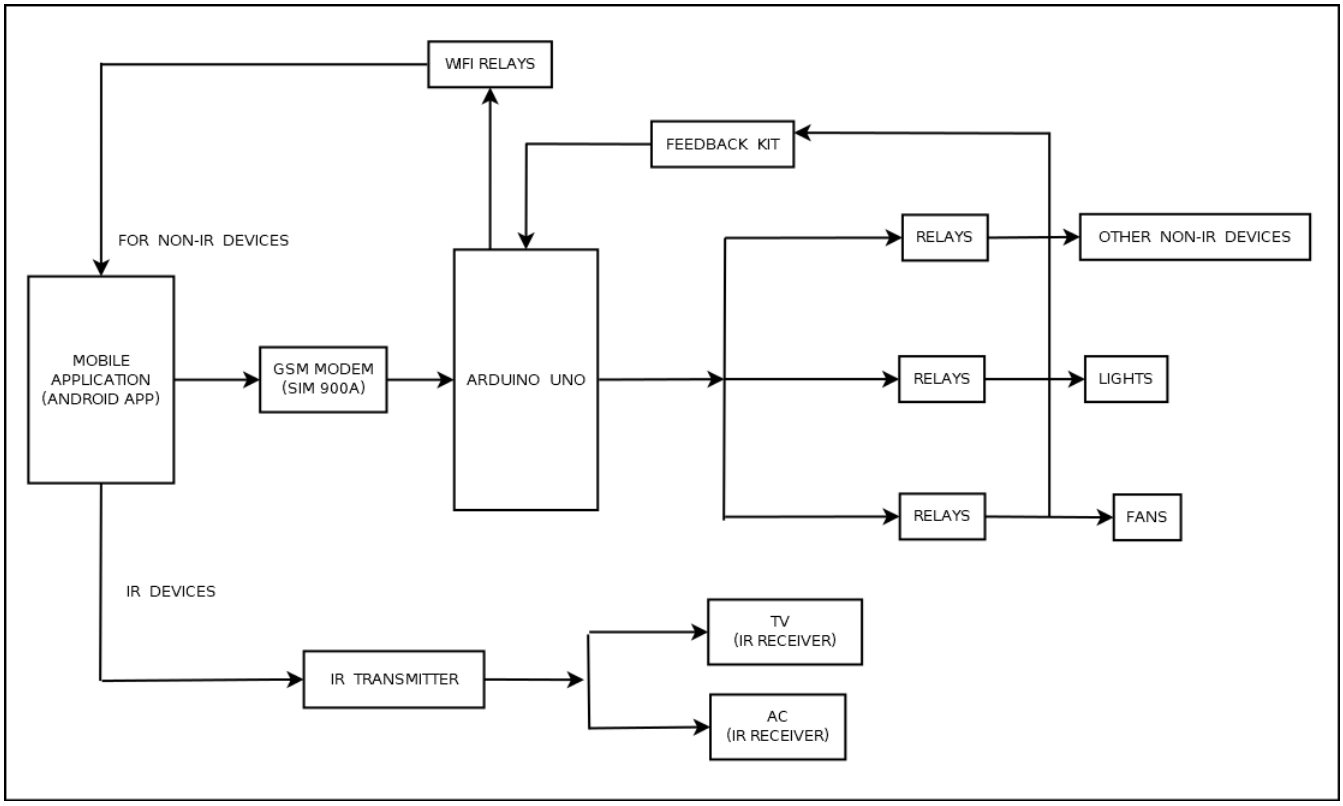

Figure 1: Power Consumption Monitoring Using Home Automation

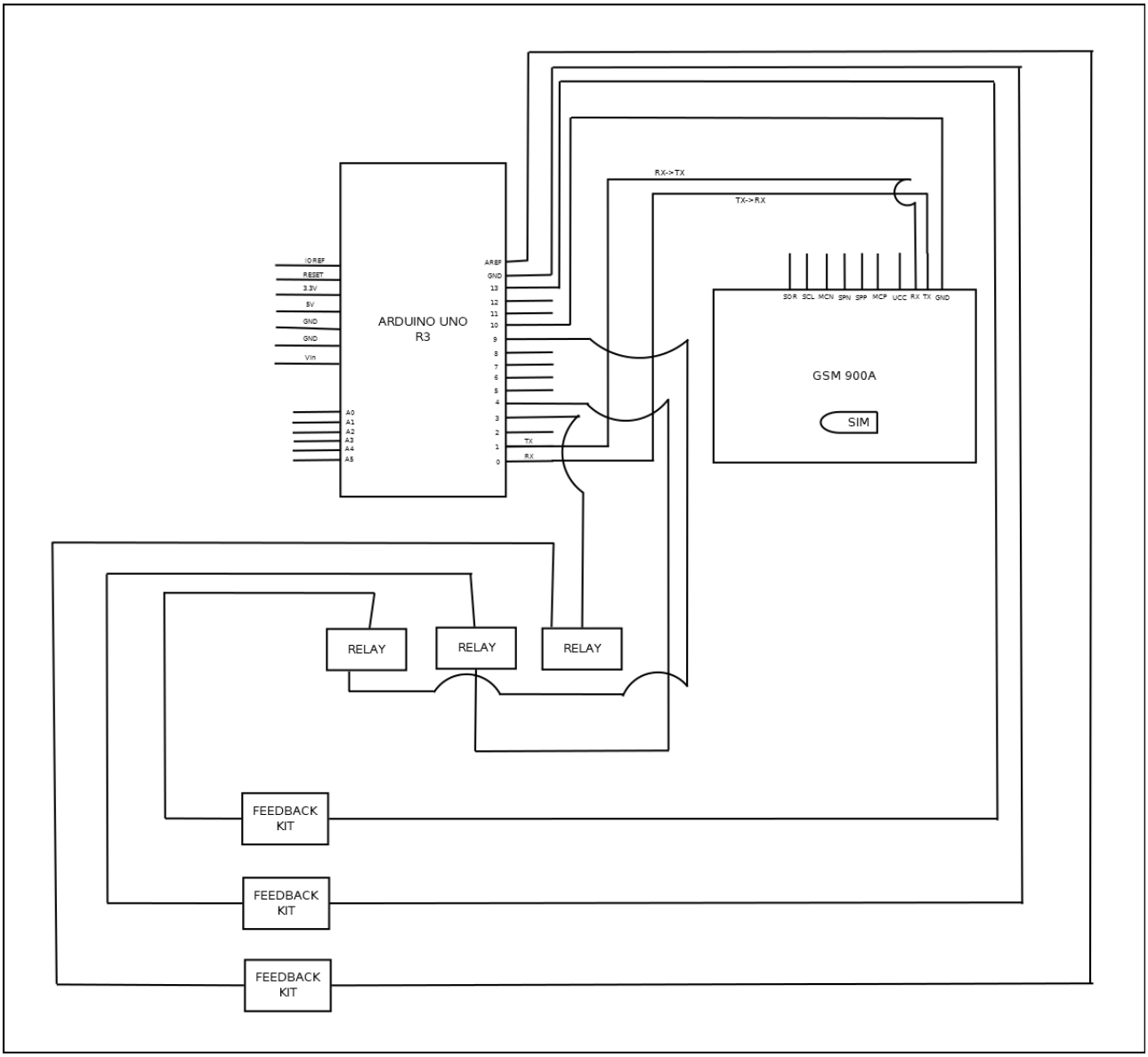

Figure 2: Pin Diagram of Power Consumption Monitoring Using Home Automation

Proposed System Architecture/Working

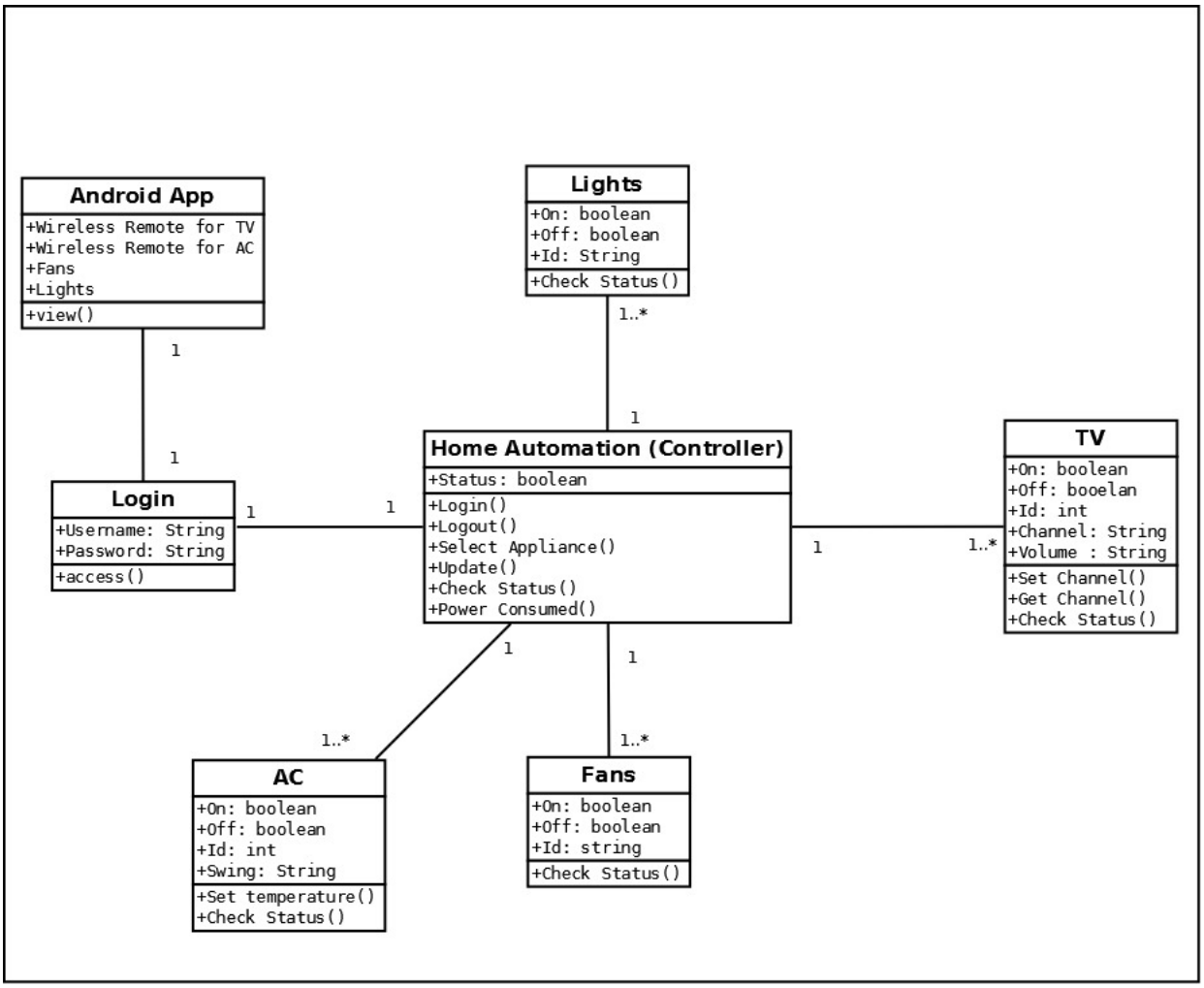

Figure 3: Class Diagram

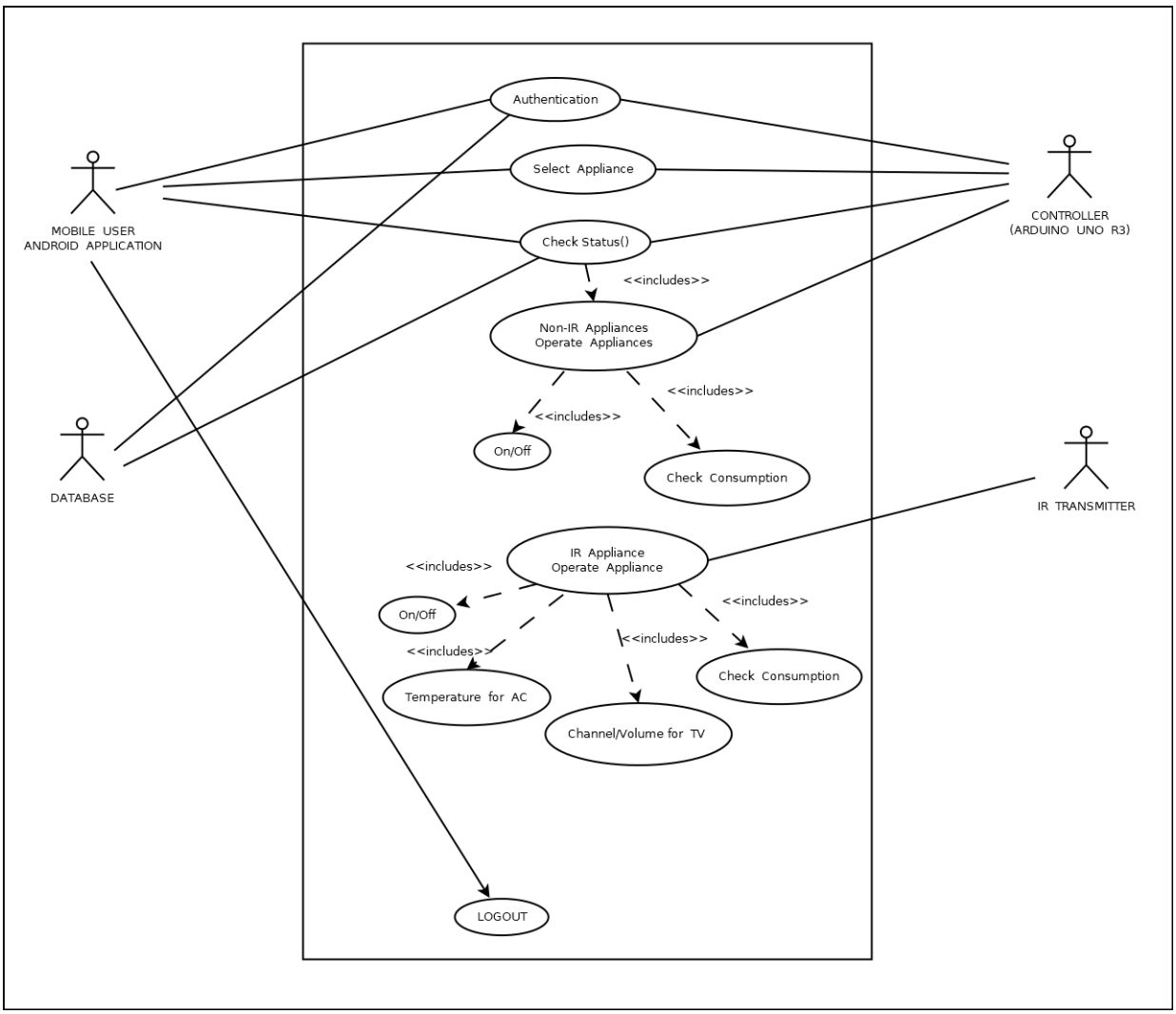

Figure 4: Use Case Diagram

References

[1] Baris Yuksekkaya, A. Alper Kayalar, M. Bilgehan Tosun, M. Kaan Ozcan, and Ali Ziya Alkar,A GSM, Internet and Speech Controlled Wireless Interactive Home Automation System IEEE Transactions,2006

[2] Trio Adiono, Bryan Tandiawan, Syifaul Fuada, Rahmat Muttaqin, Maulana Yusuf Fathany, Waskita Adijarto,Suksmandhira Harimurti, Prototyping Design of IR Remote Controller for Smart Home Applications, 2017 IEEE Region 10 Conference (TENCON), Malaysia, November 5-8, 2017

[3] Majd Ghareeb, Ahmad Farhat, Ali Oleik, Ali Bazzi, Zaher Merhi, Samih AbdulNabi ,Smart Electrical Appliances Controller using SMS,IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI-2017)