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DESIGN ANDIMPLEMENTATION OFSMARTHOMECONTROLSYSTEM BASED ON WIRELESS NETWORK

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ABSTRACT

With the fast development ofInternetofThings,smarthome has obtained more and more attention. Inthispaper,asmart home control system using wireless sensor network is discussed.This method is based on IoT concept. The smart home environment can be controlled and monitored from mobile anytime and any where across the world.

I.Introduction

Inthisfastmovingworld,thingsarebecomingsmarter.TheIoTisuponusing abigwayand peoplearekeeponinventingmoregadgets thatenhance ourlives.The cost of microcontrollerswhichhastheabilitytotalkoveranetwork keeps dropping anddeveloperscannow buildthingsinexpensively. Developers and thehardwareenthusiastsdonotneedtowaitonothersforinventing orbuilding coolstuff.The controlaspectsofIoTarereallygreatforhomeautomation.Itisgreattobeabletoplaywiththecatviaiotcatwhilewearenatripanywherein the world with an internetconnection.

CONVENTIONALMETHOD

The maximumpercentageofpossiblerenewablepenetration an alternativestructurewhereinnearby homesexplicitlyshareenergywitheachother to balance local energyharvesting and demand inmicrogrids.We develop a novelenergy sharing approach todetermine which homes shouldshare energy, and when, tominimize system-wide efficiencylosses.Weevaluateourapproachinsimulationusingrealtracesofsolarenergyharvestingandhomeconsumptiondata.We showthatOursystem reduces the energylossontheAclineby60%withoutrequiringlargebatteries,scalesupperformance with largerbatterycapacities and is robust tochanges in microgrid topology.Meter reading taken manuallyErrors occurred due to lessconcentration.The Meterreadingnot accurate. Huge Manpowerneeded Delayed work due toexternal conditions. Power cutmanuallyduetolackofpayment.

II.PROPOSEDMETHOD

The system is aboutaenergy sharing system in amultifamily residentialhouse toreduce total energy costs.Therefore,ifa large portion ofenergiesareassignedtothehomeconsuming large electricity,thetotalenergycostcanbereduced.a energy sharing system in amultifamilyresidentialhouse.Thehousehasvariousdifferentsizesof homes.A large size home Consumeslargeelectricityenergy.Asmallsizehomedoessmallone.Each home is supplied withelectricity from the utility.Theelectric energy consumption ofeach home is measured bythesmart meter installed at eachhome. The outlets get theelectricityfrom thesmartmeter.Home appliances are connectedtotheoutletandbecomeelectricloads.whichinvertsDCtoAC.Theinverted AC issupplied to eachhome through energy sharingManager.Thepowerlinefrom theconnected to each homeatthestage afterthe smartmeter.Italso measures energy datasupplied to each home throughitself. Monitoring energyconsumption at each home,itassignsenergytoalargeenergyconsuminghome.PowercutfromEB office through wireless andNormalworkhappenatanytimeand external conditions LessManpowerwith HighAccuratemeterreading CustomerservicewellPowermanagement.

III.BLOCKDIAGRAM

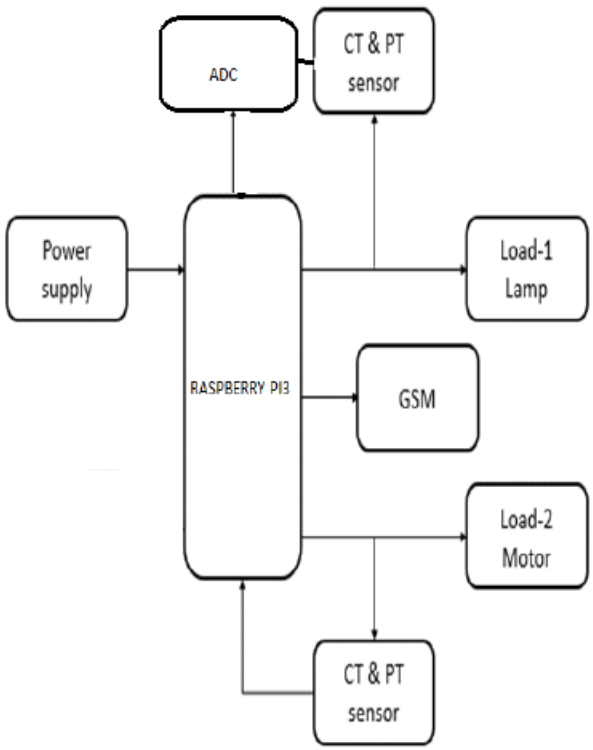

Fig1.1showstheblockdiagramOfproposedsystem

Tosavethemaximum energy, the managementsystem isautomatically adjusted theworking states of homeappliancesinresponse to environmentaldata.CIECentralBureausuggeststhat the minimum illumination(level)ofindoorworkplacesshouldrangefrom 300to500lux.To save energy consumption, naturallightmustbeconsideredinThedesignoflightingsystemsforbuildings.

IV.I²CPROTOCOL

I²Cisamulti-masterprotocolthat usestwosignallines.ThetwoI²Csignalsarecalledas‘serialdata’SDA and ‘serial clock’ SCLrespectively. Chip select slaveselectorarbitration logicisnotneeded.Thenumberofslavesandnumberofmasters connectedinto those signal lines andcommunication between eachother using that protocol isdefinedas:7-bitsslaveaddresses:eachdeviceconnectedtothebusacquiresauniqueaddress;dataisdividedinto8-bitbytesconsistingoffew controlbitsforcontrollingthe communication, start, end,direction and for the acknowledgment mechanism.Thedatarateischosenbetween100kbps,400 kbps and 3.4 Mbps,called as standard mode,fastmodeandhighspeedmode.SomeI²C variants has 10 kbps lowspeed mode and 1 Mbps fastmodeasvalidspeeds.TheI²Cbushasthose2activewiresSDAandSCL along with a groundconnection.Boththeactivewireswere bi-directional. The I²CprotocolstatesthattheICwhichinitiatesthedatatransferonthebusisconsideredtobetheBusMaster. Consequently, in theduring period,remaining ICsareregardedtobeBusSlaves.First,themasterissuestheSTARTcondition.ThisistheAttentionsignaltoalloftheconnecteddevices.AllICsonthebuswilllistento the bus forincomingdata. Then the mastersendstheADDRESSofthedeviceitneedstoaccess,along with an indicationwhetherthe access is aRead orWrite operationAfterreceivingtheaddress,allIC’swillcompareitwitht heir own address.If itdoesn’tmatch,theysimplywaitforthebustoreleasefrom thestopcondition.Iftheaddressesarematched,the chip produces aresponse called theACKNOWLEDGE signal.Oncethemasterreceivesthe acknowledge,it canstart transmitting orreceiving DATA. In thiscase,themastertransmitsthedata.Wheneverythingisdone,themasterissuestheSTOPcondition.Thisisasignalthatstatesthebusbeingreleasedandthattheconnected ICscanexpectanother transmission tostartatanytime.When amasterwants to receivedatafrom aslave,similarwayisfollowed,butsetstheRD&WRbitatalogical one.Once the slave hasacknowledgedtheaddress,it starts sending therequested data,byte bybyte.Aftereachdatabyte,itisup to themastertoacknowledge the receiveddata.There are uniqueconditions on the bus - START and STOP,whichare closely dependentofthe I²C bus physicalstructure. The I²Cspecification states thatdatacan changeontheSDA lineiftheSCLclocksignalisatthelevel‘low’;thedataontheSDA linewill be considered asstablewhenSCLisinstate“high”.Inthephysicallayer,SCL and SDA lines areopen-drain I/O along withpull-up resistors .Pullingthelinetogroundwillbedecodedasalogicalzero ,and releasing ofthe lineandlettingitflow will be consideredasalogicalone.ThedeviceontheI²Cbus‘only drives zeros’.Associating the physicallayer and the protocoldescribedaboveallow theflawless communicationbetween any number of devicesand on physicalwires.Ifthebothdevicesare simultaneously tryingToputinformationonthe SDA andSCLlinesinthe electrical level, there isactuallynoconflictatamultipledevicestrytoputanylogiclevelontheI²Cbuslinessimultaneously.Ifanyoneofthedriverstriestowritealogicalzeroandthe other a logicalone,then the open-drain andpull-upstructuremakesurethat there will be noshortcutand thebuswill actuallyseealogicalzerotransitingonthebus.Ifanyconflicttakesplace,alogiczeroalways‘wins’.

V.CONCLUSION

Development ofahomeenergymanagementsystem wouldhelptoreduceunnecessary energyconsumptionandimplementdemand side managementamong domestic consumers. ThedevelopedSETS consist of ameasuringunit,datastorage,processing unit, controlunit,display,communicationunit,database,websiteand anandroidapplication.

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