Chapter 2

Background

A keen eye will notice that along with raspberry pi another microcontroller is being used i.e. Arduino uno. But why use another microcontroller when there is a raspberry pi present.

The answer to that question is quiet interesting, i.e. we are using best of both worlds.

Arduino uno –

Perks:

* Inbuilt Analog to Digital converter present (ADC)
* Can handle 5v sensors very easily
* Robust
* Low cost
* Easy maintenance

On the other hand raspberry pi –

Perks:

* Connection to the internet as smooth as butter
* Encryption of code available
* Code updating option available
* Powerful processor
* Easy maintenance

Section 2.1 – Home automation basics

Home automation (also known as domotics) refers to the automatic and electronic control of household features, activity, and appliances. Various control systems are utilized in this residential extension of building automation. Some components of an automated home may include the centralized control of security locks on doors and gates, appliances, windows, lighting, surveillance cameras and HVAC systems (heating, ventilation and air conditioning).

Section 2.2 – Advantages of home automation

Home automation has greatly increased in popularity over the past several years. One of the greatest advantages of an automated home is the ease with which functionality can be managed on an array of devices: desktop, laptop, tablet or smartphone. Before determining which home automation package is right for you and your family, it is important to become better informed of the features and settings associated with home safety and security systems.

Section 2.3 – Benefits of home automation

One of the greatest advantages of home automation systems is that users can protect against break-ins and fires, while enjoying automations for lights, temperature, and more. The automation of features in one’s home helps to promote security, comfort, energy efficiency, and convenience. Another benefit of home automation systems is the amount of labor, time, energy and materials that is saved.   
  
Home automation systems are becoming more and more affordable. Not only are prices decreasing, but operating systems are also become less complex so that users can readily master all the controls associated with their safety and security devices. Home automation commands can now be given through smartphones, tablets, and televisions, in addition to computers.

Section 2.4 – How does a conventional electric meter works?

Let us have a look at the working of an electric meter which is meant for residential connections. Usually domestic electric meter is enclosed in a glass case in which contains a revolving disk which in turn rotates a series of numbers or dials. When the electric current passes through the meter, the disk rotates to measure the exact amount of kilowatts used. The speed of rotation varies depending on how much electricity you are using in your house for particular device such as running a washing machine, microwave and water heater etc. It is important to note that different electric appliance uses different amount of electricity for its operating. More the utilization of electric power, the faster the speed of rotation of disks.