CHAPTER 3

METHODOLOGY

3.1 Introduction

To develop Medical Refrigerator Alert System with SMS notification, a suitable way must be utilized to make a systematic progress of process. The life cycle of this progress is largely no different than the System Development Life Cycle (SDLC) for desktop applications or web. There are five major phase of the method according to Figure 1.1 below.

Figure 3.0: the System Development Life Cycle (SDLC)
a) **Inception**

This is the first phase in Mobile Development Life Cycle, which will be used as a part of the application development. This is the stage where the idea is generate to present and propose the Medical Refrigerator Alarm with SMS notification by gathering information based on existing problem face on UMP Clinic. The first project target can be achieved after competing this stage.

b) **Design**

In the Design stage, this will define the necessary functions and features in-depth project. The logical design of the prototype will be built in this stage. The final phase will produce during modifies the includes technology choices and logical design, functionality of the application, system architecture specifically, goals accomplished and logical design behaviour.

c) **Development**

In Development stage will be dividing into three (3) stages. First parts are Implementation development. Second parts are integration and testing. This will test all the part of hardware together into a special testing environment. Essential of the testing is for checks for, bugs, errors and interoperability. Third stage is installation, acceptance, and deployment. The final stage of initial development will be done in this level.
d) **Stabilization**

The prototype is produced, it is tested for any bugs or problems and fixed in this stage. A beta version of the application will be released for a wide user audience to get their feedback for any changes and improvements.

e) **Deployment**

The final stabilized version is released to users during this phase, and the user is responsible to suggest any improvements or features to it and test the application.

### 3.2 Block Diagram

Figure 3.1 shows the block diagram of the proposed temperature controller for utilization in a refrigerator. It is equipped with an Ethernet Shield, which is capable of making the user monitor the temperature by a local area network by using a laptop or mobile phone. As shown in Figure 3.2, $T_s$ is the set temperature and $T_a$ is the temperature measured by the temperature sensor. DHT11 is utilized as the temperature sensor for this system as it offers incredible affectability and stability. The Arduino UNO microcontroller is utilized as it is easily available in the market and is easy to use. The Arduino UNO will interpret the information from the sensor and control the framework. If the value of $T_a$ is not the same as $T_s$ and does not achieve the estimation of $T_s$ inside five minutes, an alarm message will be sent to the clients by the Ethernet Shield using the Twilio API that combine their service to send the SMS over the internet using the microcontroller Arduino UNO.