

APPENDIX B

LM35 Simulation Code:

```
1 #Design of Poultry Farm Monitoring and Disease Detection System using Internet of  
2 Things (IOT) and Image Processing  
3 #APPENDIX B:  
4 #Simulation LM35 Code  
5 #!/usr/bin/python  
6 import spidev  
7 import time  
8 import os  
9 import RPi.GPIO as GPIO  
10 GPIO.setmode(GPIO.BOARD)  
11 GPIO.setwarnings(False)  
12 # Open SPI bus  
13 spi = spidev.SpiDev()  
14 spi.open(0,0)  
15  
16 # Define GPIO mapping  
17 fan = 29  
18  
19 # Define sensor channels  
20 temp_channel = 0  
21  
22 # Toggle enable  
23 time.sleep(E_DELAY)  
24 GPIO.output(LCD_E, True)  
25 time.sleep(E_PULSE)  
26 GPIO.output(LCD_E, False)  
27 time.sleep(E_DELAY)  
28  
29 # Function to read SPI data from MCP3008 chip  
30 # Channel must be an integer 0-7  
31 def ReadChannel(channel):  
32     adc = spi.xfer2([1,(8+channel)<<4,0])  
33     data = ((adc[1]&3) << 8) + adc[2]  
34     return data  
35  
36 # Function to calculate temperature from  
37 # TMP36 data, rounded to specified  
38 # number of decimal places.  
39 def ConvertTemp(data,places):  
40     #ADC Value  
41     # (approx) Temp Volts  
42     # 0 -50 0.00
```

```
43 # 78 -25 0.25
44 # 155 0 0.50
45 # 233 25 0.75
46 # 310 50 1.00
47 # 465 100 1.50
48 # 775 200 2.50
49 # 1023 280 3.30
50
51 temp = ((data * 330)/float(1023))
52 temp = round(temp,places)
53 return temp
54
55 if(temp >35):
56 GPIO.output(fan, True)
57 time.sleep(1)
58 else:
59 GPIO.output(fan, False)
60 time.sleep(1)
```