*** Aim :- To understand the concept of tempe-
rature - Humidity Sensor (DHT11)
• To interface Temperature - Humidity
Sensor with Raspberry Pi model.
• To program the Raspberry Pi model
to measure the real time temperature
and Humidity the Environment.

*** Software :~
• Raspbian Os (IDLE)

*** Hardware Modules :~
• Raspberry Pi Board module.
• Temperature Humidity Sensor (DHM)
Module.
◦ Monitor.

*** Theory :~
* Physical quantities like humidity,
temperature, pressure ete are monito-
red to get information about the
environmental conditions.

* Temperature is basically amount of
heat present in environment. Humidity
is the presence of water vapors in
air.
* In our module we are using "DHT11
Temperature & Humidity Sensor".

* Safety precautions

- Raspberry - Pi provides 3·3V & 5V vcc pins
- Raspberry - Pi operates on 3·3V
- various sensors & actuators operate on different voltages
- Read datasheet of a given sensor or an actuator & then use appropriate vcc pin to connect a sensor or an actuator
- Ensure that signal voltage coming to the Raspberry - Pi from any sensor or actuator does not exceed 3·3V
- If signal / data coming to Raspberry Pi is greater than 3·3V then use voltage level shifter module to decrease the incoming voltage
- The Raspberry - Pi is a costly device, hence you should show the circuit connections to your instructor before starting your experiment

* Steps for assembling circuit :~

- Connect the VCC pin of temperature & Humidity sensor (DHT 11) to vcc pin of Raspberry Pi module
- Connect the data pin of temperature & Humidity sensor (DHT 11) to GPIO pin 15

of Raspberry Pi module
- Connect the GND pin of temperature &
Humidity Sensor (DHT11) to GND pin of
Raspberry Pi module.

✻ Procedure to install dht11 library:
- Open LxTerminal of Raspberry Pi &
enter the following commands
- Sudo apt-get update.
- Sudo apt-get install git-core
- cd ~
- git clone http://github.com/szazo/DHT11.
Python.git
- cd DHT11.Python
- Sudo python setup.py install.

✻ Procedure :-
- Write the program as per the algor-
ithm given below.
- Save program in the library folder.
- Run code using Run module

✻ Algorithm :-

- Import GPIO, time & dht11 libraries.
- Set all the warnings as false.
- Set mode i.e GPIO.BOARD.
- Read data using GPIO pin number7.
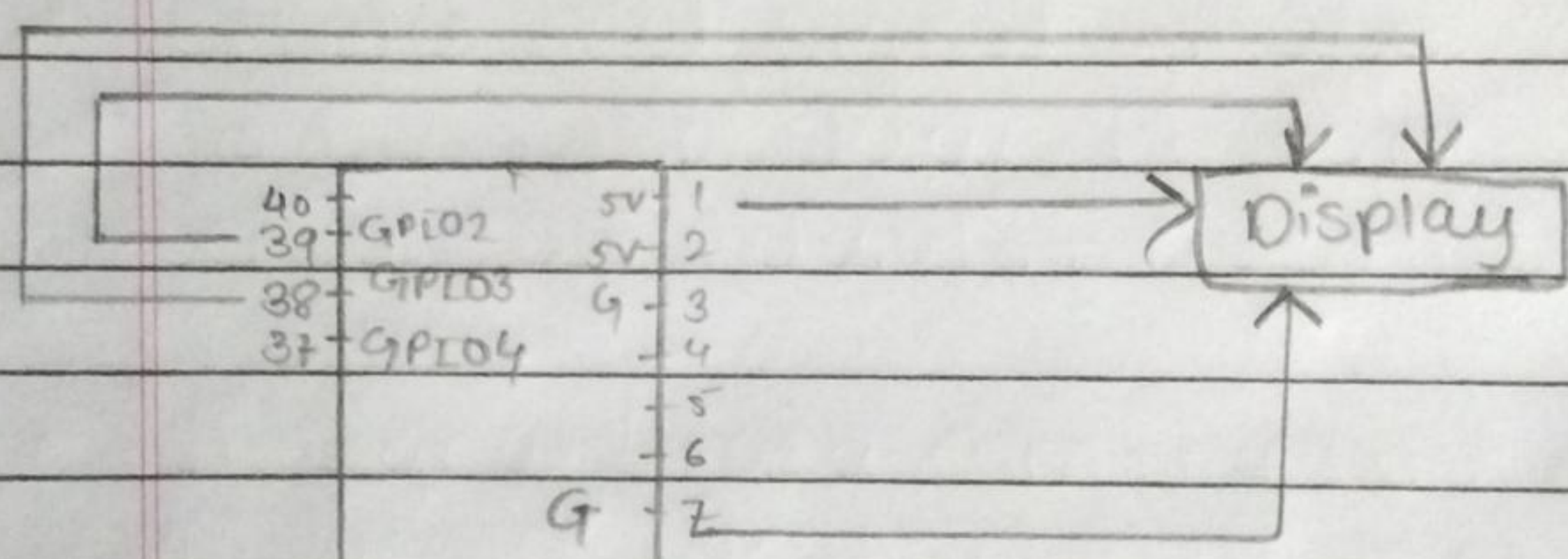- write 'while loop' for displaying
temperature & Humidity values.

Continuosly
- first Read the GPIO pin & store the data in dhtValue Variable.
- Print the temperature value.
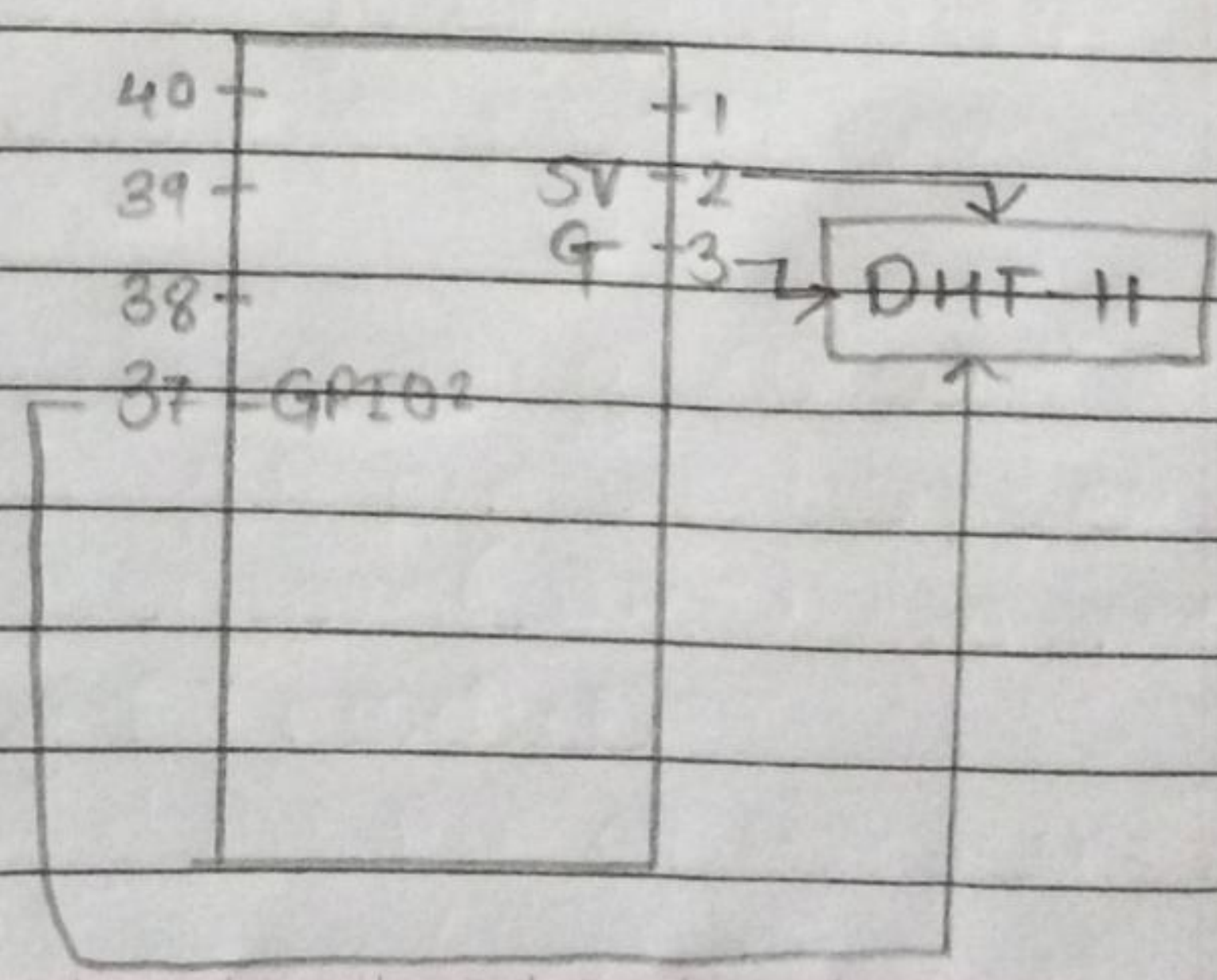- Print the humidity value.
- Give delay of 1 Second.

* Observation:
- observe the output on python shell as per program.
- observe the ON & OFF Status of buzzer.

* Temp Sensor (DHT-11) *

* GPIO - Display *

* RHT-11 *