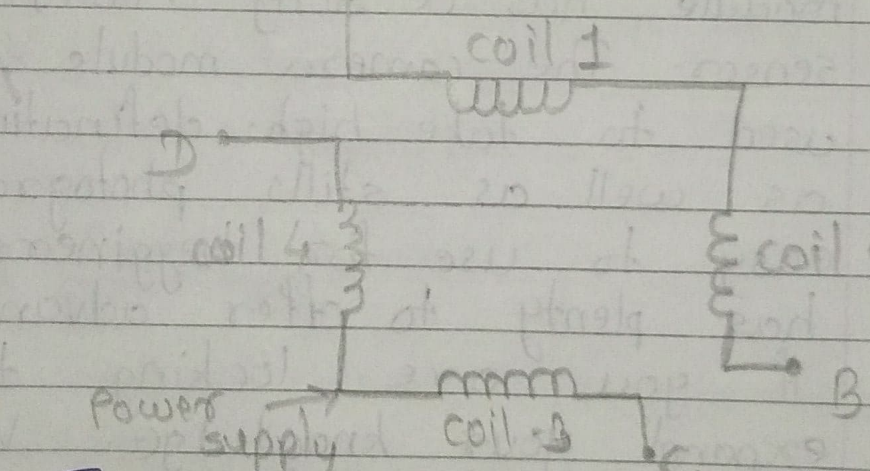
Name - Rutuja Manoj Kasar
TE - div - A
Roll no. - 65

Assignment No. - 07

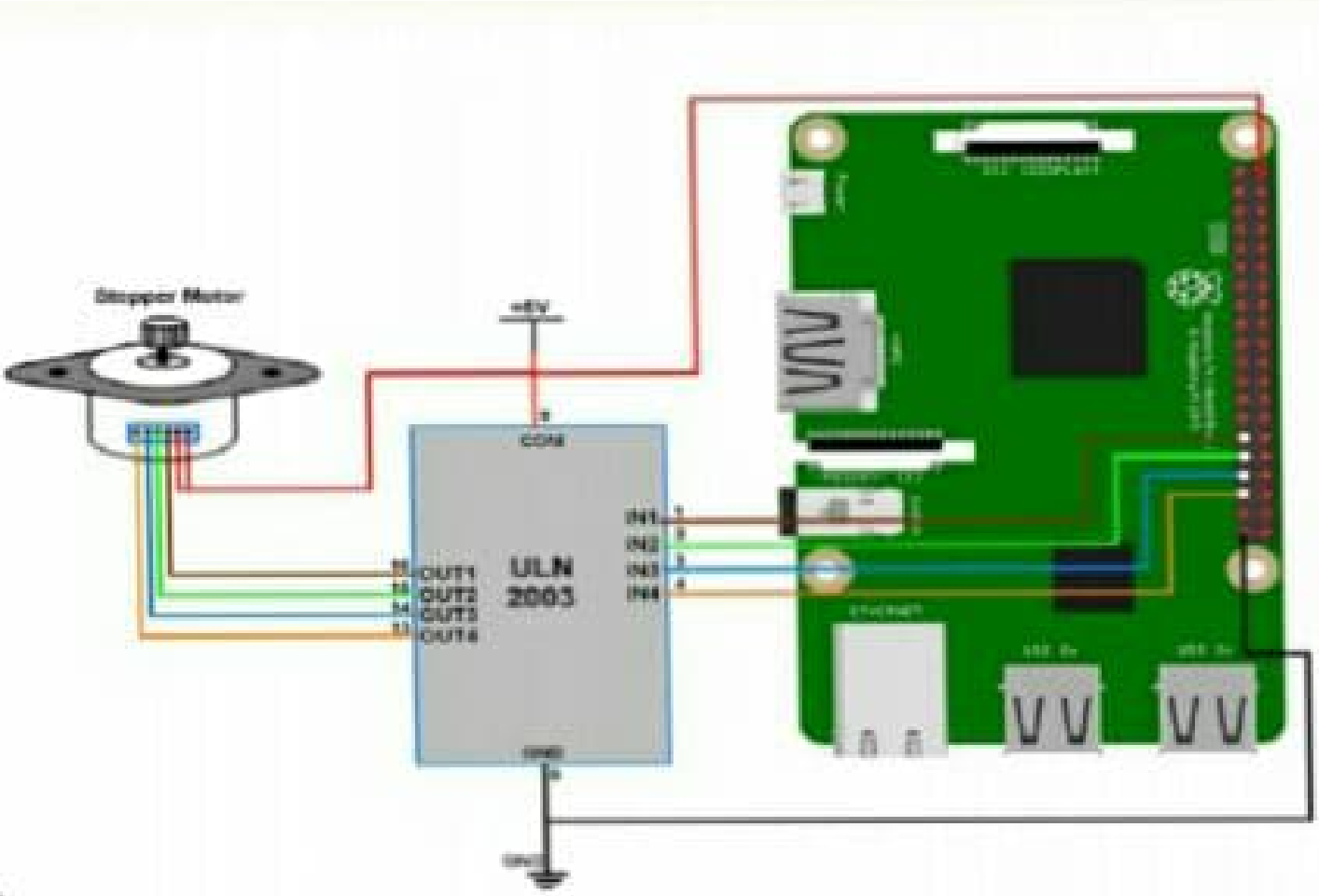
Title → Write an application Raspberry Pi / Beagle to control the operation of stepper motor.

Theory → Stepper motor →

In stepper motor, as the name itself says, the rotation of shaft of stepper motor in here we will be using the most popular one that is unipolar stepper motor.



There are 40 GPIO o/p pins in the Raspberry Pi 2. But out of 40 only 26 GPIO pins can be programmed with special GPIO put aside. We have only 17 GPIO remaining. Each of these is GPIO pin can deliver the stepper max^m at 15 mA current.


Stepper Motor
+5V
COM
ULN
2003
OUT1
OUT2
OUT3
OUT4
IN1
IN2
IN3
IN4
GND

Sample program :-

Python program

Stepper motor interfacing with Raspberry Pi

```
import RPi.GPIO as GPIO
from time import sleep
import sys

# assign GPIO pins for motor
motor_channel = (29,31,33,35)
GPIO.setwarning(False)
GPIO.setmode(GPIO.BOARD)
# for defining more than 1 GPIO channel as
  input/output use
GPIO.setup(motor_channel, GPIO.OUT)

motor_direction = input("Select motor direction
  a = anticlockwise, c = clockwise")
while True:
try:
  if(motor_direction == 'c'):
print("motor running clockwise\n")
GPIO.output(motor_channel, (GPIO.HIGH, GPIO.low
      GPIO.HIGH))
sleep(0.02)
GPIO.output(motor_channel (GPIO.HIGH, GPIO.low
      GPIO.low))
Sleep(0.2)
  elif(motor_direction == 'a')
  print("motor running anticlockwise\n")
```

```
# press ctrl+c for keyboard interrup
  except keyboard Interrup.
# query for setting motor direction or exit.
motor_direction = input ('Select motor directio
    a = anticlokwise, c = clockwise or 9 = exit ')
# Check for exit
if (motor_direction == '9')
  print ('motor Stopped')
  sys.exit(0)
```

Conclusion -

Thus, we have implemented application of stepper motors using python with Raspberry Pi