Mini Reed Switch

Overview

This course will use the Raspberry Pi to capture the signal of the reed switch, which control the on and off of the LED lamp.

Experimental Materials

RaspberryPi \*1

Breadboard \*1

miniReedSwitch \*1

Led \*1

Dupont Line

Preparatory work

1. Install python interpreter in your Raspberry Pi system

2. Install the RPi.GPIO library in your Raspberry Pi system

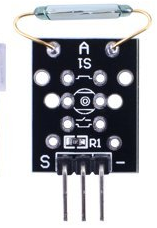
3. Install the wiringPi library in your Raspberry Pi system

Refer to the attached "Installing a Python Interpreter and Corresponding Libraries in a Raspberry Pi System" for details.

product description

Introduction：

Reed switches are electrical switches that operating through an applied magnetic field. The basic principle is to seal two pieces of magnetic reed in the glass tube(The two pieces of magnetic reed are overlapped, but there is a small gap in the middle of them). When there is a enthetic magnetic field, the two magnetic reeds will come into contact with each other. Once the magnet is away from the switch, the reed switch will return to its original position. Such switches are small in size, light in weight, and have good corrosion resistance and long service life. They are widely used in homes and industries.



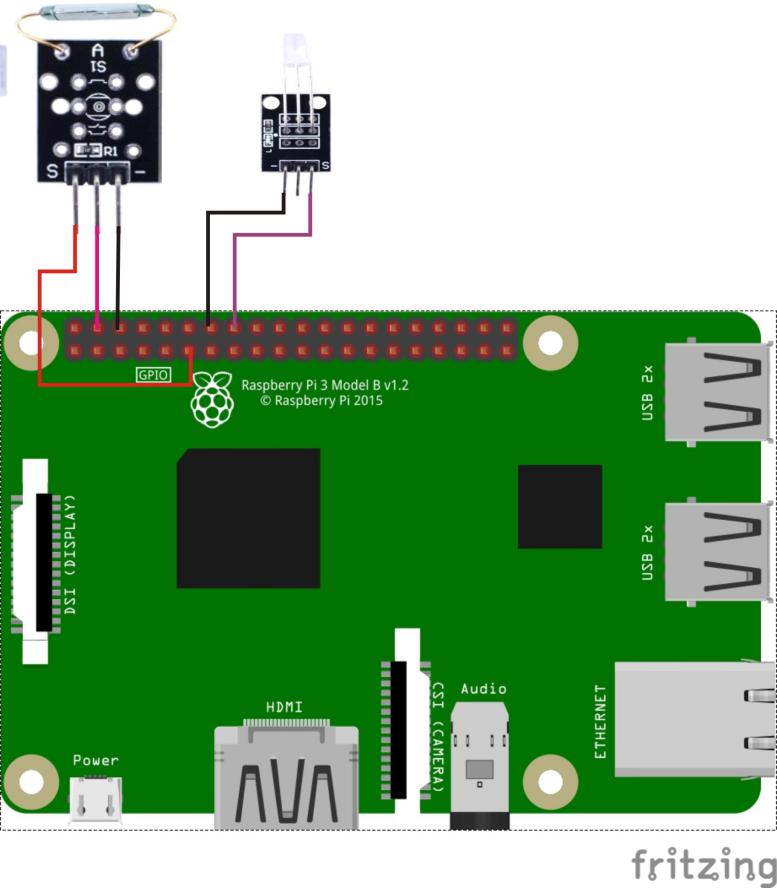
characteristic parameters

◆Size: 24mm\*15mm

◆Pull-up resistor: 10KΩ

◆Pull-up resistor access voltage: 5V

Wiring diagram



Sample code

1、python code

#!/usr/bin/env python

import RPi.GPIO as GPIO

import time

ReedPin = 11

LedPin = 16

def setup():

GPIO.setmode(GPIO.BOARD) # Numbers GPIOs by physical location

GPIO.setup(LedPin, GPIO.OUT) # Set LedPin's mode is output

GPIO.setup(ReedPin, GPIO.IN, pull\_up\_down=GPIO.PUD\_UP)

GPIO.output(LedPin, GPIO.LOW) # Set LedPin low to off led

def loop():

while True:

if(GPIO.input(ReedPin) == 0):

print "Magnet detected - LED on!"

GPIO.output(LedPin,GPIO.HIGH)

else:

print "No magnet detected - LED off!"

GPIO.output(LedPin, GPIO.LOW)

time.sleep(0.2)

def destroy():

GPIO.output(LedPin, GPIO.LOW) # led off

GPIO.cleanup() # Release resource

if \_\_name\_\_ == '\_\_main\_\_': # Program start from here

setup()

try:

loop()

except KeyboardInterrupt:

destroy()

1. C code

#include <wiringPi.h>

#include <stdio.h>

#define reedPin 0

#define LedPin 4

int cnt = 0;

int main(void)

{

if(wiringPiSetup() == -1)

{

printf("setup wiringPi failed !\n");

return -1;

}

pinMode(LedPin, OUTPUT);

pinMode(reedPin, INPUT);

pullUpDnControl(reedPin, PUD\_UP);

while(1)

{

if(!digitalRead(reedPin))

{

printf("Magnet detected...\n");

digitalWrite(LedPin, HIGH);

}

else

{

printf("No magnet detected...\n");

digitalWrite(LedPin, LOW);

}

delay(200);

}

return 0;

}

Experimental phenomena:

When the reed switch detects the magnet, the LED will light up; when the magnet is away from the reed switch, the LED will go out.