

# Inverted LED Display

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## I made a mistake

When I designed the PCB for this project. I did what most people would do and I made the PCB the 'right way up' with 40 Way Raspberry pi header and the 7 Segment LED also the normal way up (so you can read it). Later on I realised this was a bit of a mistake, because this means the Raspberry Pi Zero Power and USB connections are now at the bottom, so you can't power this up and put it on a table :(.

Fear not though, with some help I have edited the code so that it writes the time upside-down, so if you rotate your Raspberry Pi 180° you can read the time correctly, and still put it on the table. Below is the adjusted code.

**Please NOTE:** You do **NOT** have to rotate the 7 Segment LED on the PCB, the code does this for you.

```
<sxh [py]; options for SyntaxHighlighter> #!/usr/bin/python # Python Script to run a 7 Segment Common Anode LED as a clock. #
Version 1.0 import RPi.GPIO as GPIO import time
```

```
#Define numbering system for the IO pins Raspberry Pi GPIO.setmode(GPIO.BCM)
```

```
# Define GPIO ports for the 7seg gpioSegments = (5,6,13,19,26,21,20,16) # 7seg_segment_pins (11,7,4,2,1,10,5,3) + 100R inline # Setup
channels for output and set initial values for segment in (gpioSegments):
```

```
GPIO.setup(segment,GPIO.OUT)
GPIO.output(segment,GPIO.HIGH)
```

```
# Define GPIO ports for the digits 0-3 gpioDigits = (18,23,24,25) gpioDigits = (25,24,23,18) # Pins (12,9,8,6) select digits 0-3 respectively
reading LTR on display # Setup channels for output and set initial values for digit in (gpioDigits):
```

```
GPIO.setup(digit,GPIO.OUT)
GPIO.output(digit,GPIO.LOW)
```

```
#Define flags for control of Colon separator on display colon_visible=True colon_counter=0
```

```
#Define segment arrays for each number to be displayed numbers = {
```

```
'0':(0,0,1,0,1,0,0,0),
'1':(0,1,1,1,1,1,0,1),
'2':(0,0,1,1,0,0,1,0),
'3':(0,0,1,1,0,1,0,0),
'4':(0,1,1,0,0,1,0,1),
'5':(1,0,1,0,0,1,0,0),
'6':(1,0,1,0,0,0,0,0),
'7':(0,0,1,1,1,1,0,1),
'8':(0,0,1,0,0,0,0,0),
'9':(0,0,1,0,0,1,0,0),
' ': (0,0,0,0,0,0,0,0)}
```

```
#Cycle through each digit and its segments try:
```

```
while True:
    time_string = str(time.ctime()[11:13]+time.ctime()[14:16]).rjust(4)
    for digit in range(4):
```

```
#select digit to display
```

```
GPIO.output(gpioDigits[digit], 2)
```

```
#set required segments on
```

```
for segment in range(0,8):
    GPIO.output(gpioSegments[segment], numbers[time_string[digit]][segment])
```

```
#check to see if we are on segment 3 of digit 2(LTR)
```

```
if ((digit==2) and (segment==2)):
```

#when colon counter gets to set value flip colon display mode between TRUE (visible) and False (NOT.visible)

```
if (colon_counter<=25):
```

#count value not reached turn colon ON or OFF based on current setting of colon\_visible

```
    if colon_visible==True:
        GPIO.output(13, 0)
    else:
        GPIO.output(13, 1)
```

#colon counter set value reached so flip colon display mode and reset colon counter

```
    else:
        colon_counter = 0
        colon_visible = not colon_visible
```

#display all selected segments for a short time

```
    time.sleep(0.005)
```

#turn-off All segments

```
    for segment in range(0,8):
        GPIO.output(gpioSegments[segment],GPIO.HIGH)
```

#turn-off current digit selector pin

```
    GPIO.output(gpioDigits[digit], GPIO.LOW)
```

#advance colon counter

```
    colon_counter=colon_counter+1
```

finally:

```
GPIO.cleanup()
```

</sxh>

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