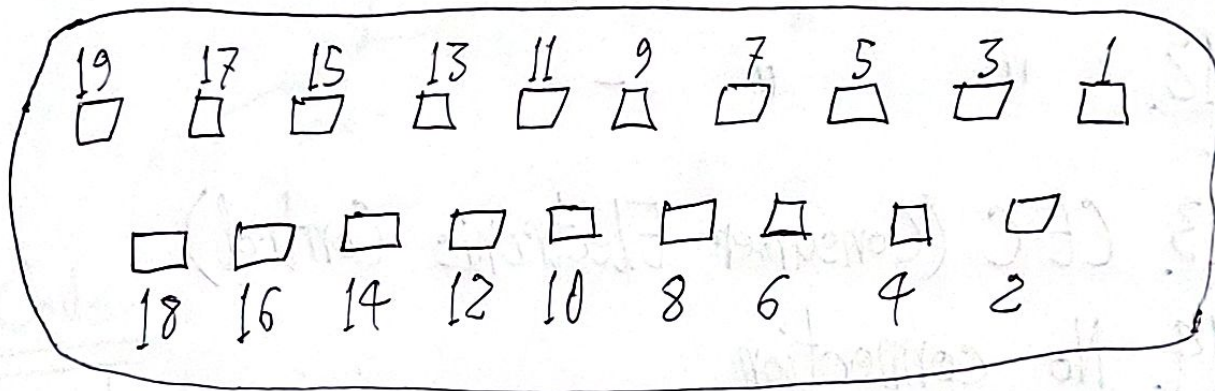


# HDMI

17.07.22

TMDS = Transition minimised differential signalling.

HDMI = High Definition Multimedia Interface.



- 1. TMDS Data 2 +
  - 2. " " 2 Shield
  - 3. " " 2 -
- Video ~~data~~ period
- 
- 4. TMDS Data 1 +
  - 5. " " " Shield
  - 6. " " 1 -
- Audio
- 
- 7. TMDS Data 0 +
  - 8. " " 0 Shield
  - 9. " " 0 -
- Data control period

10. TMD5 Clock +  
11. " " Shield

12. " " -

13. CEC (Consumer Electronic Control)

14. No connection

15. DDC ~~clock~~ (Display Data Channel) Clock.

16. " Data.

17. GND.

18. +5V

19. Hot Plug Detect

(i) Video data period  
(ii) Data island period  
(iii) " control "

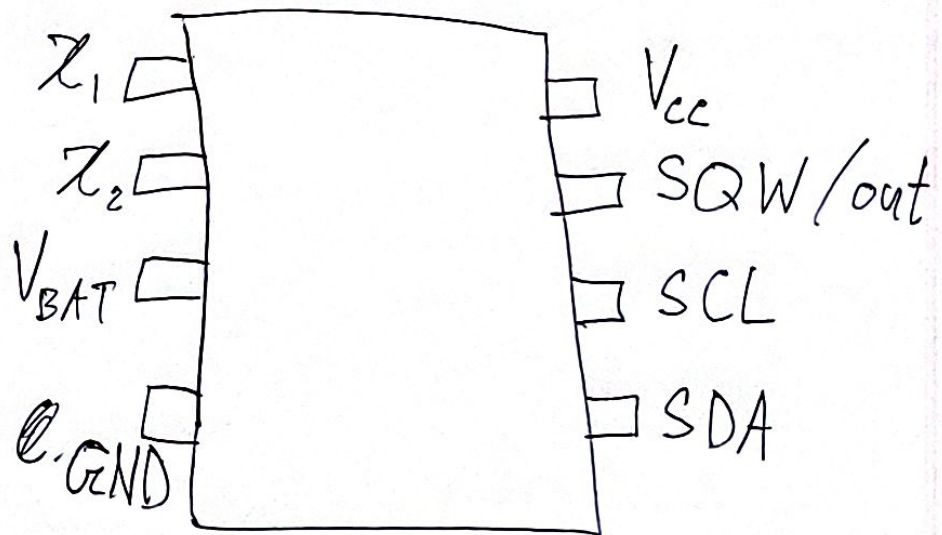
data (+)
data (-)



## RTC Module

21/04/22

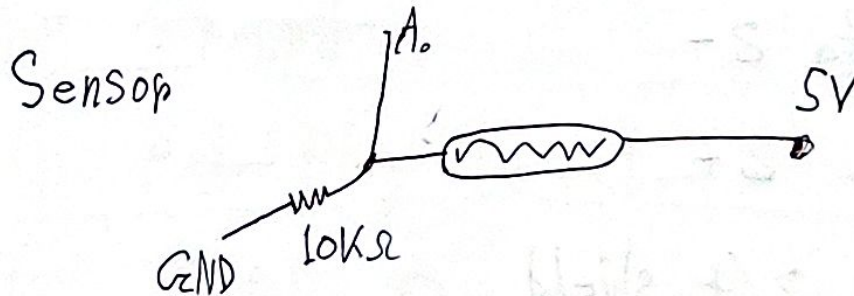
RTC = Real Time Clock



# LDR

27.07.22

LDR  $\rightarrow$  Light Dependent Register



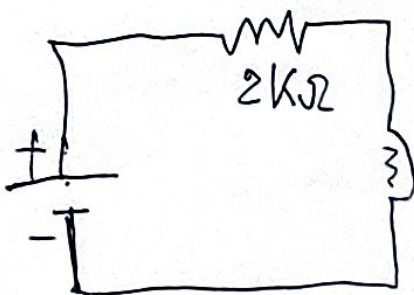
Code >

```
void loop ( )
```

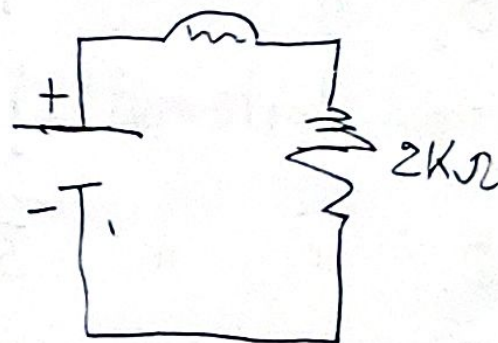
```
{  
  int R = analogRead (A0)
```

```
}
```

#define pin A0



Resistance connected to positive of source



Resistance connected to negative of source

# DVI Port

11.05.21

□ DVI = Digital visual Interface

1. TMDS Data 2-

2. " " 2+

3. " " 2/4 shield

4. " " 4-

5. " " 4+

6. DDC Clock

7. " Data

8. Analogue Vertical Sync

9. TMDS Data 1-

10. " " 1+

11. " " 1/3 shield

12. " " 3-

13. " " 3+



14. Power +5V

15. Ground

16. Hot Plug Detect

17. TMDS 0 -

18. " 0 +

19. TMDS ~~0/5~~ shield

20. TMDS 5 -

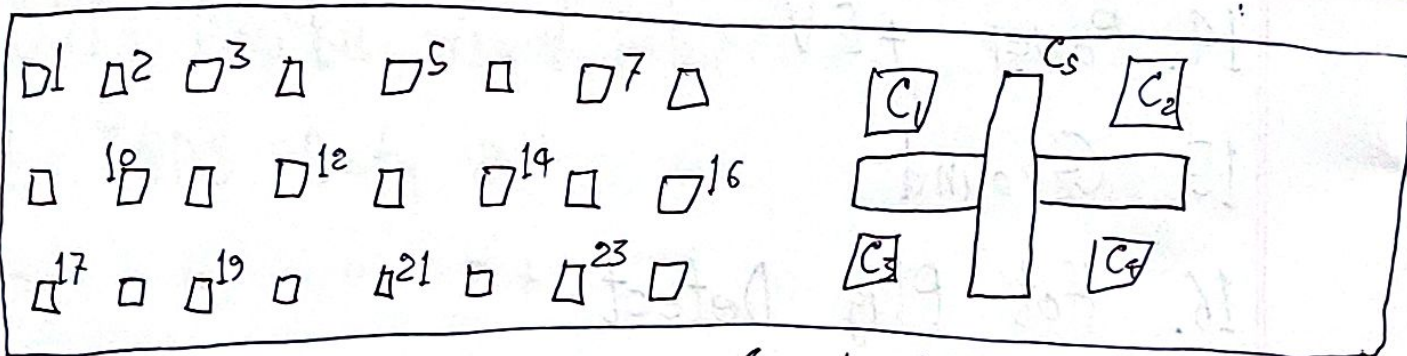
21. " 5 +

22. " Clock Shield

23. " Clock +

24. " " -

Transition Minimised Differential Signaling = TMDS



DVI-I ~~sig~~ (Single link)

C<sub>1</sub> → Analogue Video Red

C<sub>2</sub> → " " Green

C<sub>3</sub> → " " Blue

C<sub>4</sub> → " Horizontal Sync

C<sub>5</sub> → " Common ground

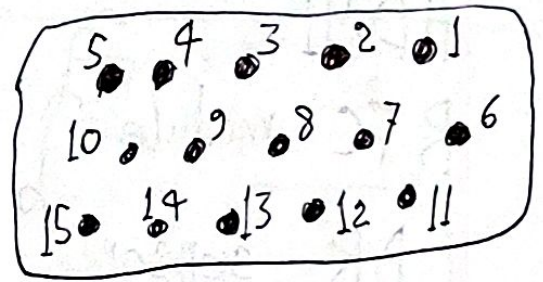
□ DVI-A → Same as DVI-I without Pins 3, 4, 5, 9, 10, 11, 12, 13, 19, 20, 21, and 22.



# VGA Port

18.05.22

15 pins :-



1. Red / 14. VSync

2. Green / 15. ID3

3. Blue

4. ID2

5. GND

6. Red return

7. Green //

8. Blue //

9. 5V

10. GND (VSync)

11. ID0

12. ID1

13. HSync

4 11 12

ID2 ID0 ID1

N/C N/C N/C → no monitor

N/C N/C GND → mono monitor

N/C GND N/C → colour not 1024

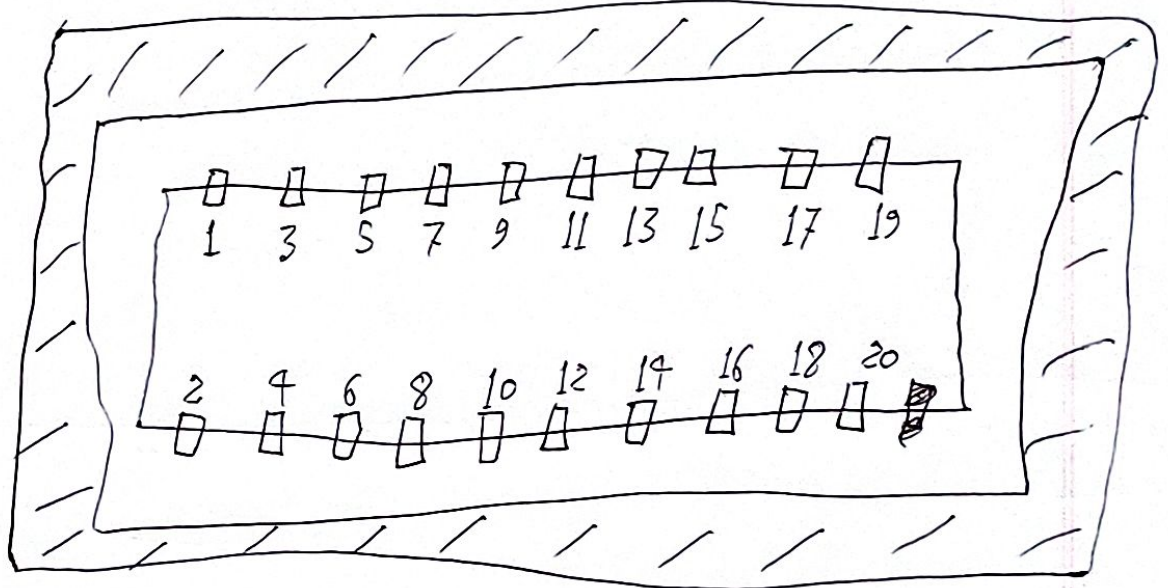
GND GND N/C X768

↘ colour 1024 X 768



# Thunderbolt

22.05.22



1. GND

2. HPD (~~Hot Plug Detect~~)

3. HS0TX+

4. " -

5. HS0RX+

6. " -

7. GND

8. "

9. LSR2P ~~TX~~

10. GND

11. LSR2P RX

12. GND

13. "

14. "

15. HS1TX+

16. HS1RX+

17. HS1TX-

18. HS1RX-

19. GND

20. PWR

HPD = Hot Plug Detect

HS = High Speed

T = Transfer

R = Receiver

LSR = Low Speed ~~Transfer~~