MCU Data Logger Board

By/ Eid Elsayed
Group ID: 14731012512
Student ID: 1473101251216

Content

1. List of components
2. Schematic
3. PCB Layout
4. 3d Layout

01

List of componetns

MCU Data Logger

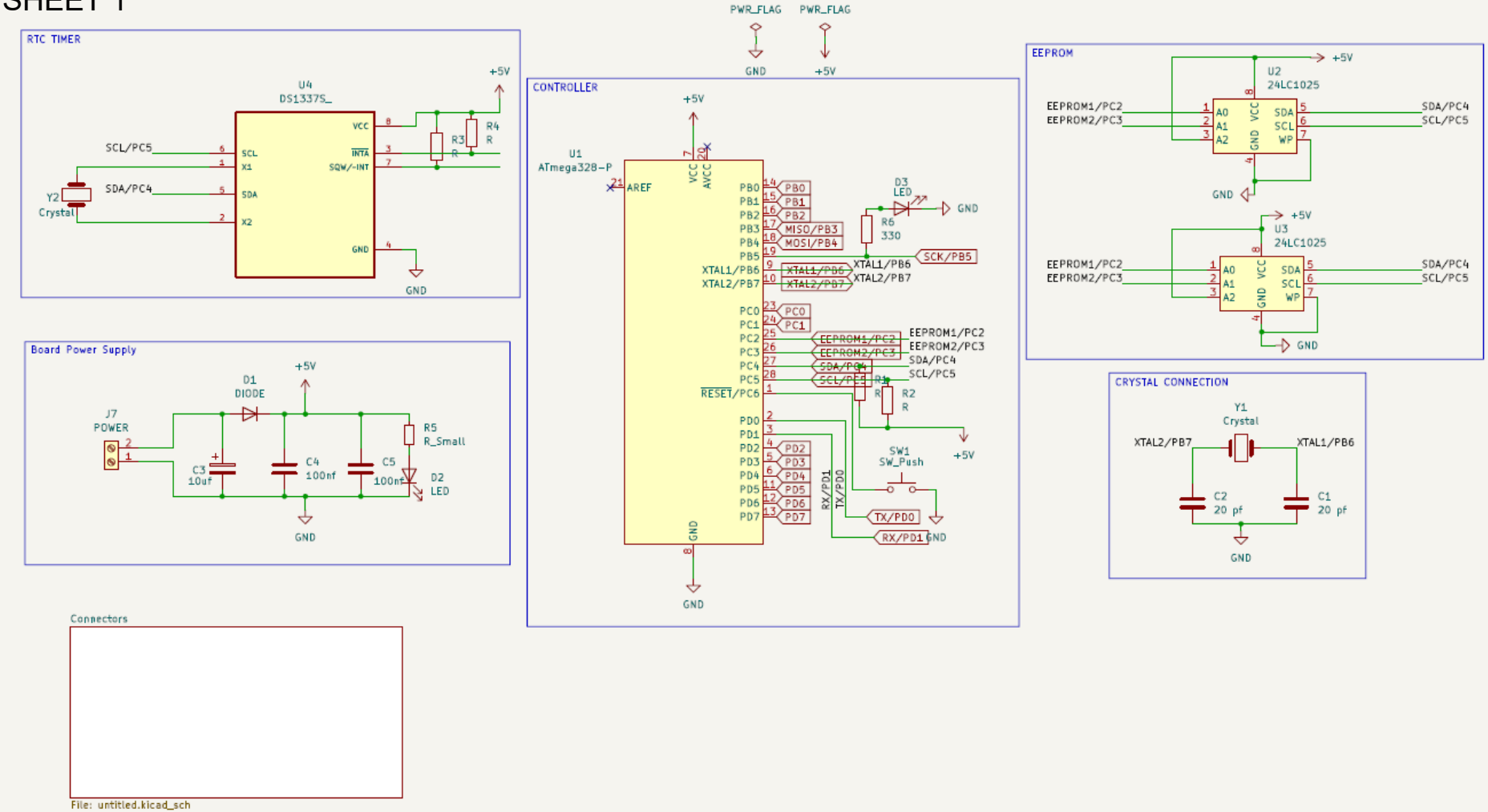
It is a MCU Datalogger board based on atmega328p-Au microcontroller , the board will contain the following components

- atmega328p-Au MC
- Two EEPROM chip (24LC1025)
- RTC(Real time clock) chip DS1337S_
- Two indicator leds for power source and SPI CLK signal
- connectors for interfacing with UART,SPI,I2C modules in the microcontroller

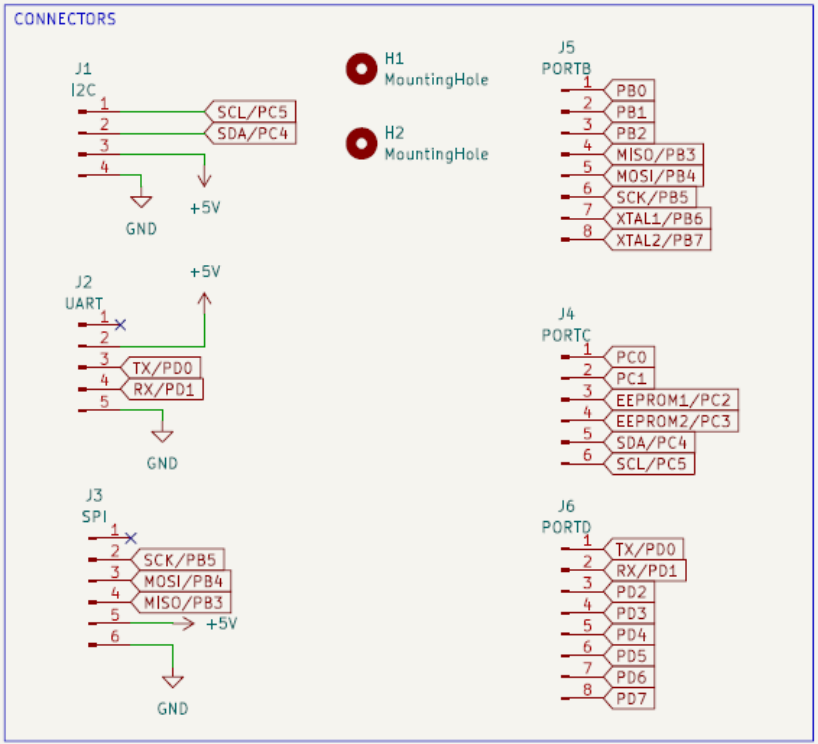
02

SCHEMATIC

SHEET 1

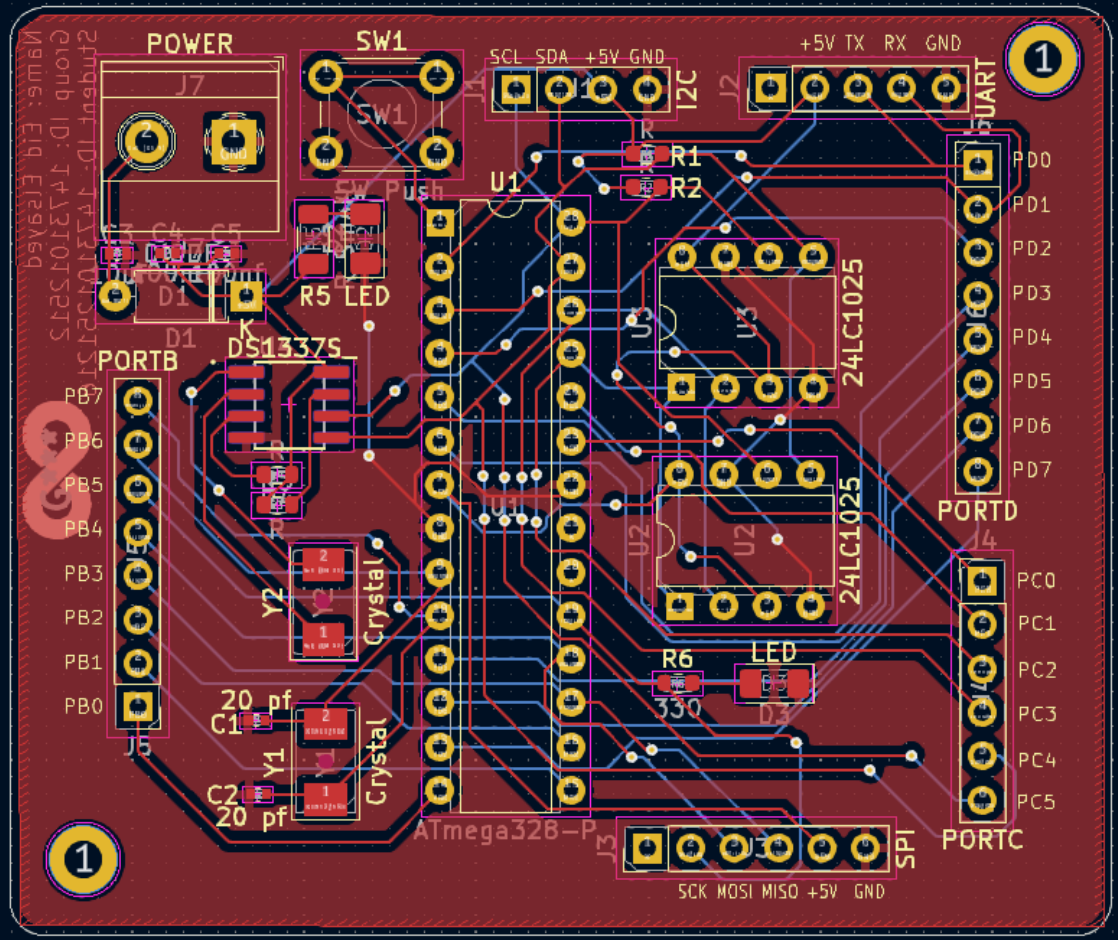

RTC TIMER
U4
DS1337S_
VCC
INTA
SQW/~INT
SCL
X1
SDA
X2
GND
SCL/PC5
SDA/PC4
Y2
Crystal
R3
R
R4
R
+5V
GND
PWR_FLAG
PWR_FLAG
GND
+5V
CONTROLLER
U1
ATmega328-P
AREF
VCC
AVCC
PB0
PB1
PB2
PB3
PB4
PB5
XTAL1/PB6
XTAL2/PB7
PC0
PC1
PC2
PC3
PC4
PC5
RESET/PC6
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
MISO/PB3
MOSI/PB4
SCK/PB5
D3
LED
R6
330
R1
R
R2
R
SW1
SW_Push
RX/PD1
TX/PD0
EEPROM1/PC2
EEPROM2/PC3
SDA/PC4
SCL/PC5
EEPROM
U2
24LC1025
U3
24LC1025
A0
A1
A2
VCC
GND
SDA
SCL
WP
Board Power Supply
J7
POWER
D1
DIODE
C3
10uf
C4
100nf
C5
100nf
R5
R_Small
D2
LED
CRYSTAL CONNECTION
Y1
Crystal
C2
20 pf
C1
20 pf
Connectors
File: untitled.kicad_sch

SHEET 2


CONNECTORS
J1
I2C
1
2
3
4
SCL/PC5
SDA/PC4
+5V
GND
H1
MountingHole
H2
MountingHole
J5
PORTB
1
2
3
4
5
6
7
8
PB0
PB1
PB2
MISO/PB3
MOSI/PB4
SCK/PB5
XTAL1/PB6
XTAL2/PB7
J2
UART
+5V
1
2
3
4
5
TX/PD0
RX/PD1
GND
J4
PORTC
1
2
3
4
5
6
PC0
PC1
EEPROM1/PC2
EEPROM2/PC3
SDA/PC4
SCL/PC5
J3
SPI
1
2
3
4
5
6
SCK/PB5
MOSI/PB4
MISO/PB3
+5V
GND
J6
PORTD
1
2
3
4
5
6
7
8
TX/PD0
RX/PD1
PD2
PD3
PD4
PD5
PD6
PD7

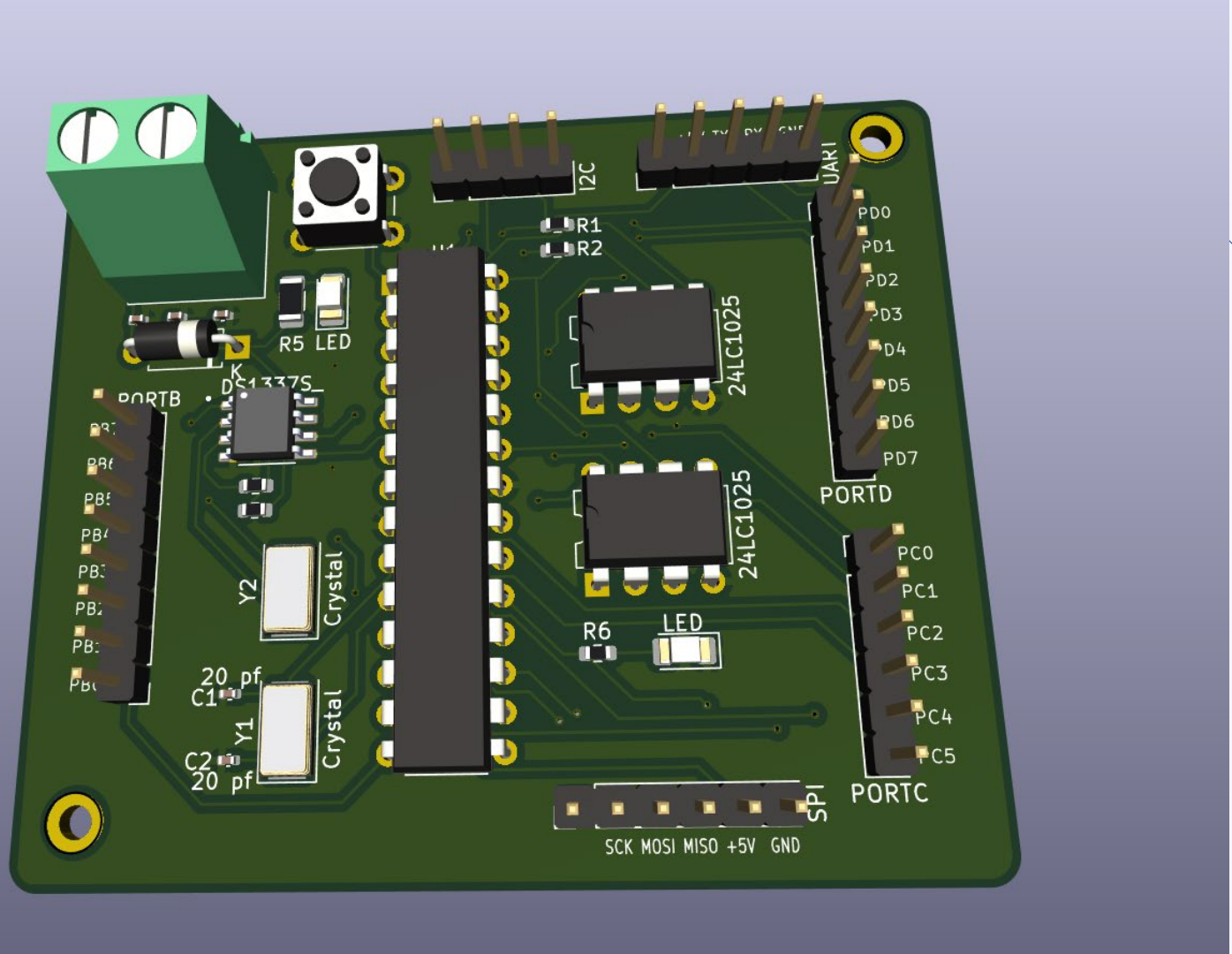
03

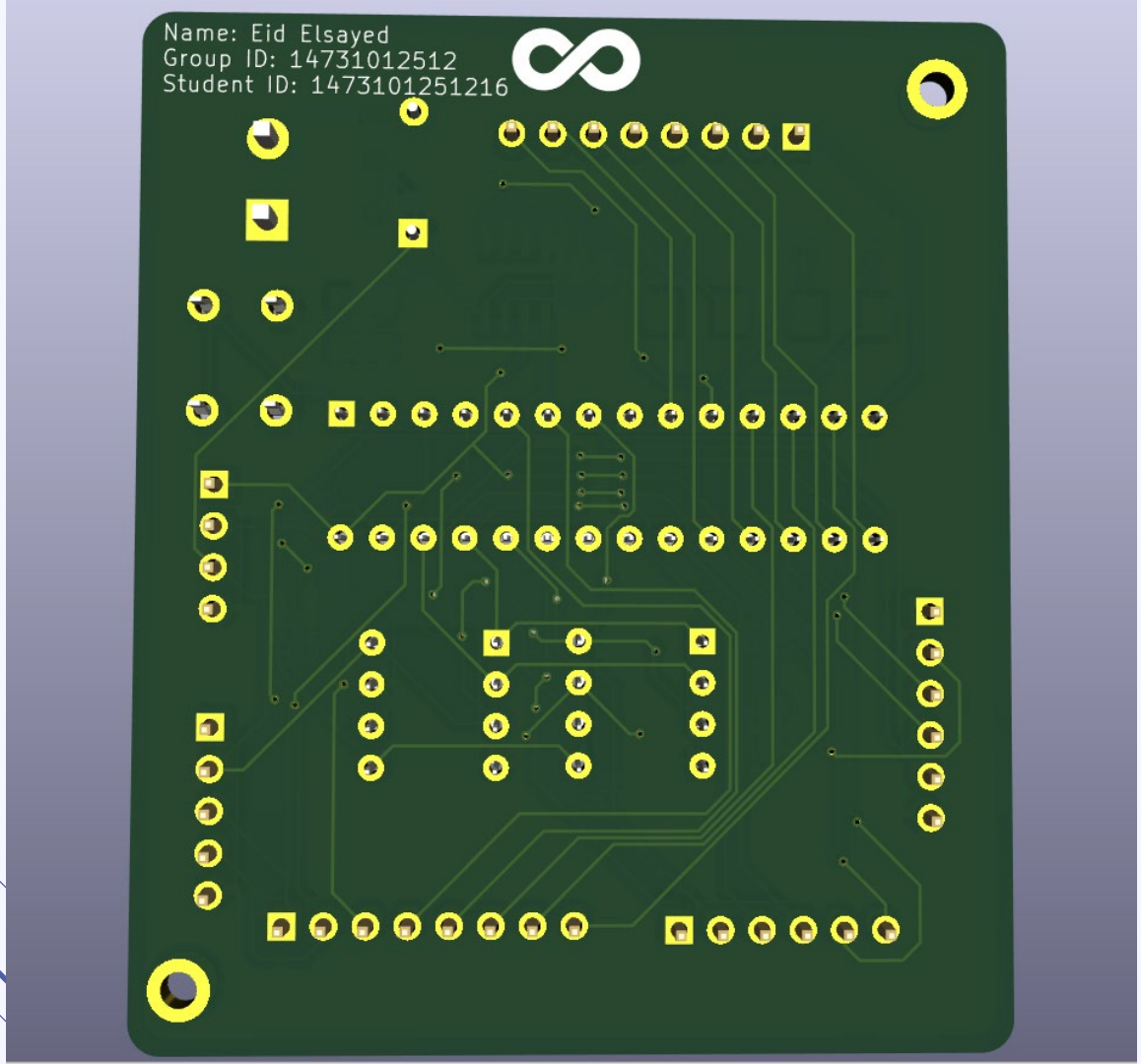
PCB LAYOUT



04

3D LAYOUT


I2C
UART
R1
R2
R5
LED
K
DS1337S
PORTB
24LC1025
24LC1025
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PORTD
Y2
Crystal
20 pf
C1
Y1
Crystal
C2
20 pf
R6
LED
PC0
PC1
PC2
PC3
PC4
PC5
PORTC
SPI
SCK MOSI MISO +5V GND


Name: Eid Elsayed
Group ID: 14731012512
Student ID: 1473101251216