AVR®

ATmega32 Development KIT

KIT Features

- **Controller: Atmega32**
  - 8-bit Microcontroller with 32Kbytes In-System Programmable Flash running on 16MHz external clock.

- **Programmer:**
  - Built in atmega8 USBASP Programmer based on SPI.

- **Power Supply:**
  - Built in Power supply: **3.3v**, **5v**.

- **LCD 2X16.**

- **7 Segment 4 digits multiplexed.**
  - 7447 BCD to 7segment Decoder.
  - Common Cathode 7segment.

- **I²C EEPROM.**

- **Real Time Clock DS1307.**

- **SD-Card Interface.**

- **UART Interface.**

- **H-Bridge up to 5A for one DC motor:**
  - External Power supply.

- **Keypad matrix 3x3.**

- **Light Sensor (LDR).**

- **Buzzer.**

- **6 LEDs.**

- **2 Potentiometer connected on ADC.**

- **2 Push Buttons.**

- **Reset switch.**

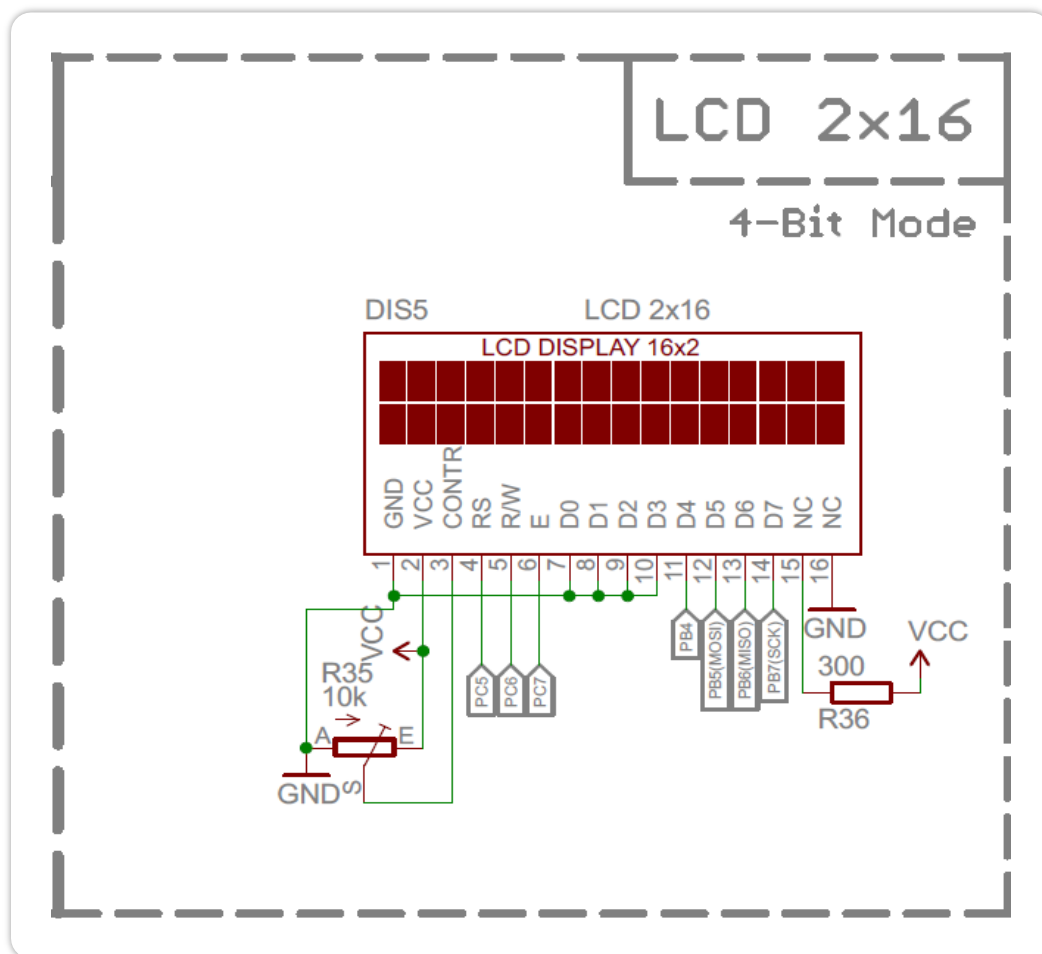# Pin Diagram and Module connections

- **2X16 Character LCD:**
  - **Data Lines:**
    - D4 → PORTB.4 (PB4)
    - D5 → PORTB.5 (PB5)
    - D6 → PORTB.6 (PB6)
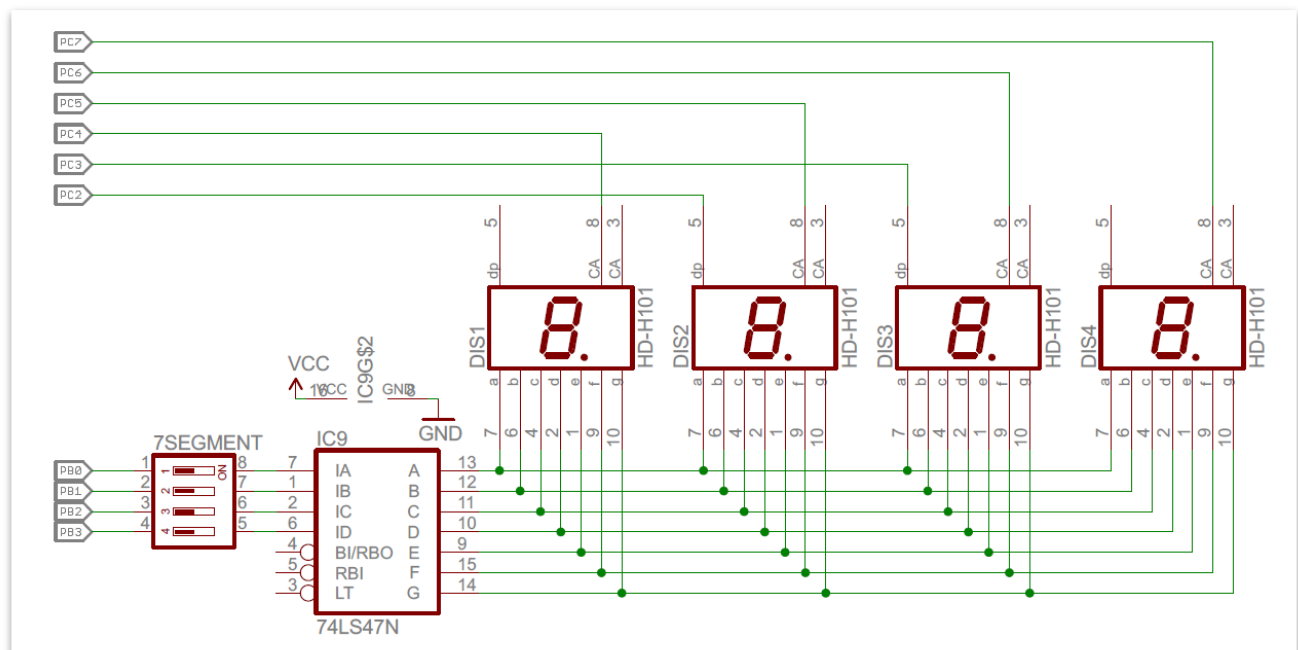   - D7 → PORTB.7 (PB7)
  - **Control lines:**
    - RS → PORTC.5 (PC5)
    - RW → PORTC.6 (PC6)
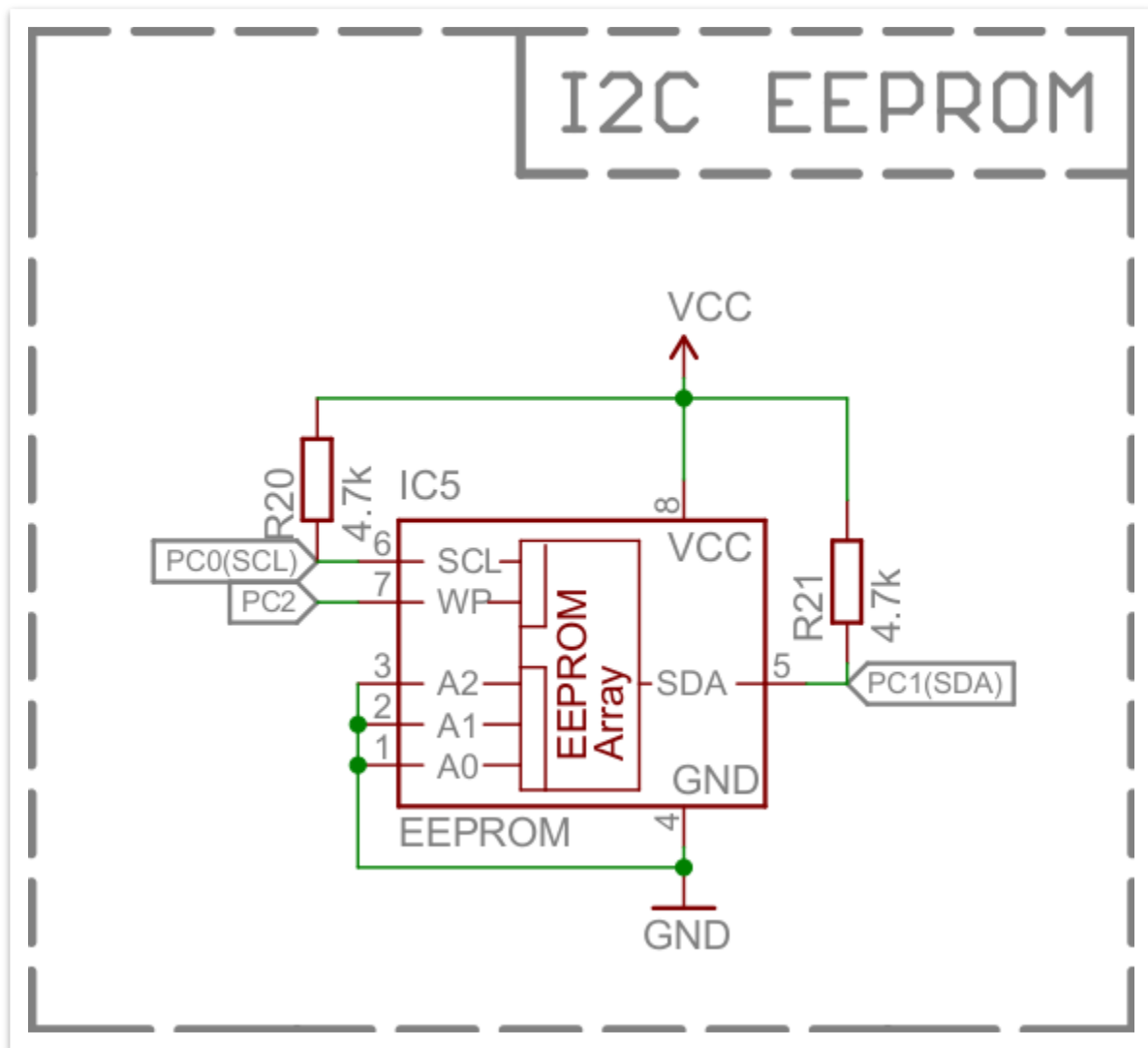   - EN → PORTC.7 (PC7)

- **7 Segment 4 digits multiplexed:**
  - **7447 BCD to 7segment Decoder.**
  - **Common Cathode 7segment.**
  - **BCD data lines:**
    - A → PORTB.0 (PB0)
    - B → PORTB.1 (PB1)
    - C → PORTB.2 (PB2)
    - D → PORTB.3 (PB3)
  - **Enable lines:**
    - DISP1 → PORTC.5 (PC5)
    - DISP2 → PORTC.6 (PC6)
    - DISP3 → PORTC.7 (PC7)
    - DISP4 → PORTC.8 (PC8)
  - **Decimal Point:**
    - DISP2.dp2 → PORTC (PC2)
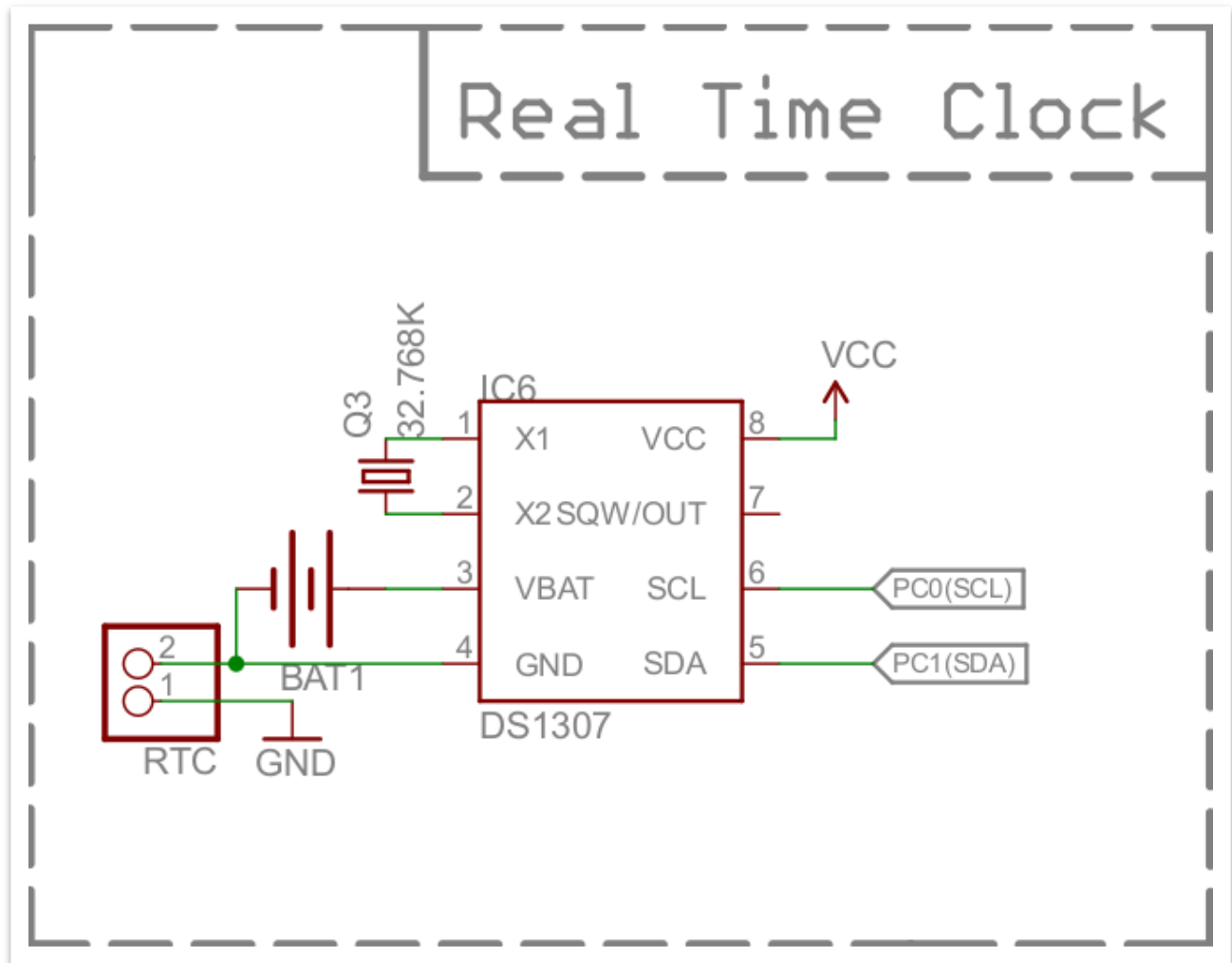   - DISP3.dp3 → PORTC (PC3)

- **I²C EEPROM:**
    - SCL → PORTC (PC0)
    - SDA → PORTC (PC1)
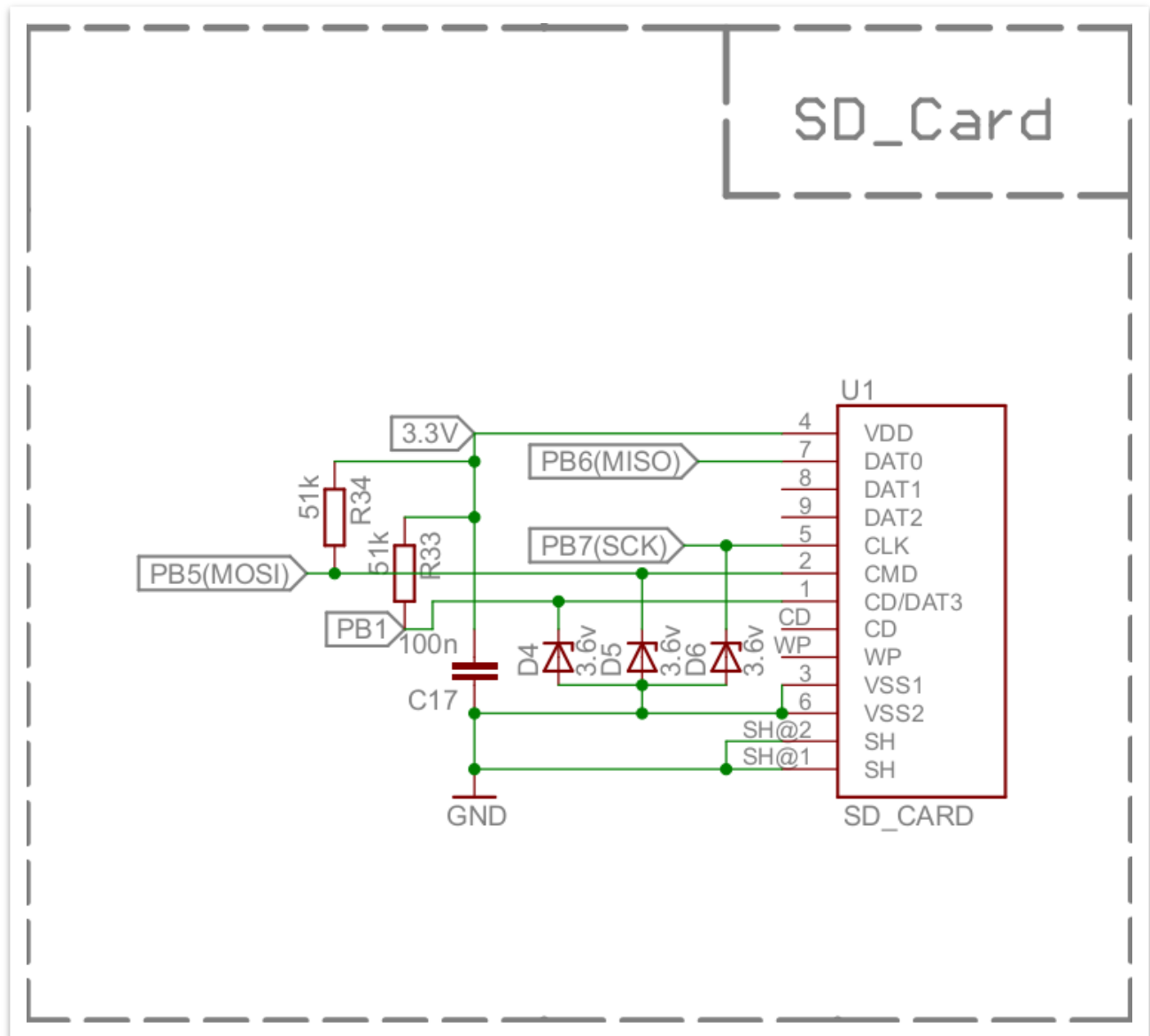   - WP → PORTC (PC2)

- **Real Time Clock DS1307:**
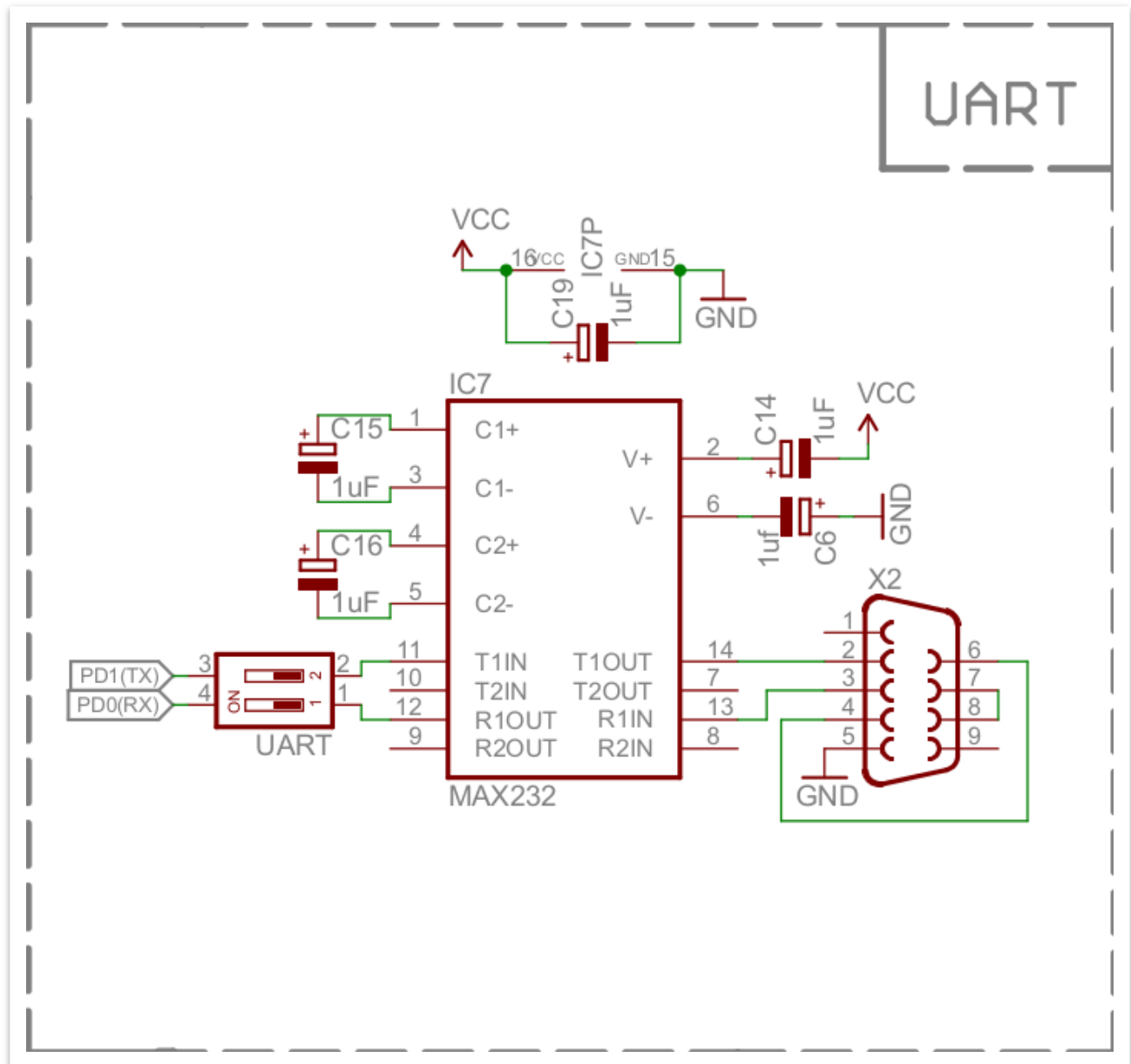   - SCL → PORTC (PC0)
    - SDA → PORTC (PC1)

SD-Card Interface:

- CMD → PORTB.5 (PB5(MOSI))
- DAT0 → PORTB.6 (PB6(MISO))
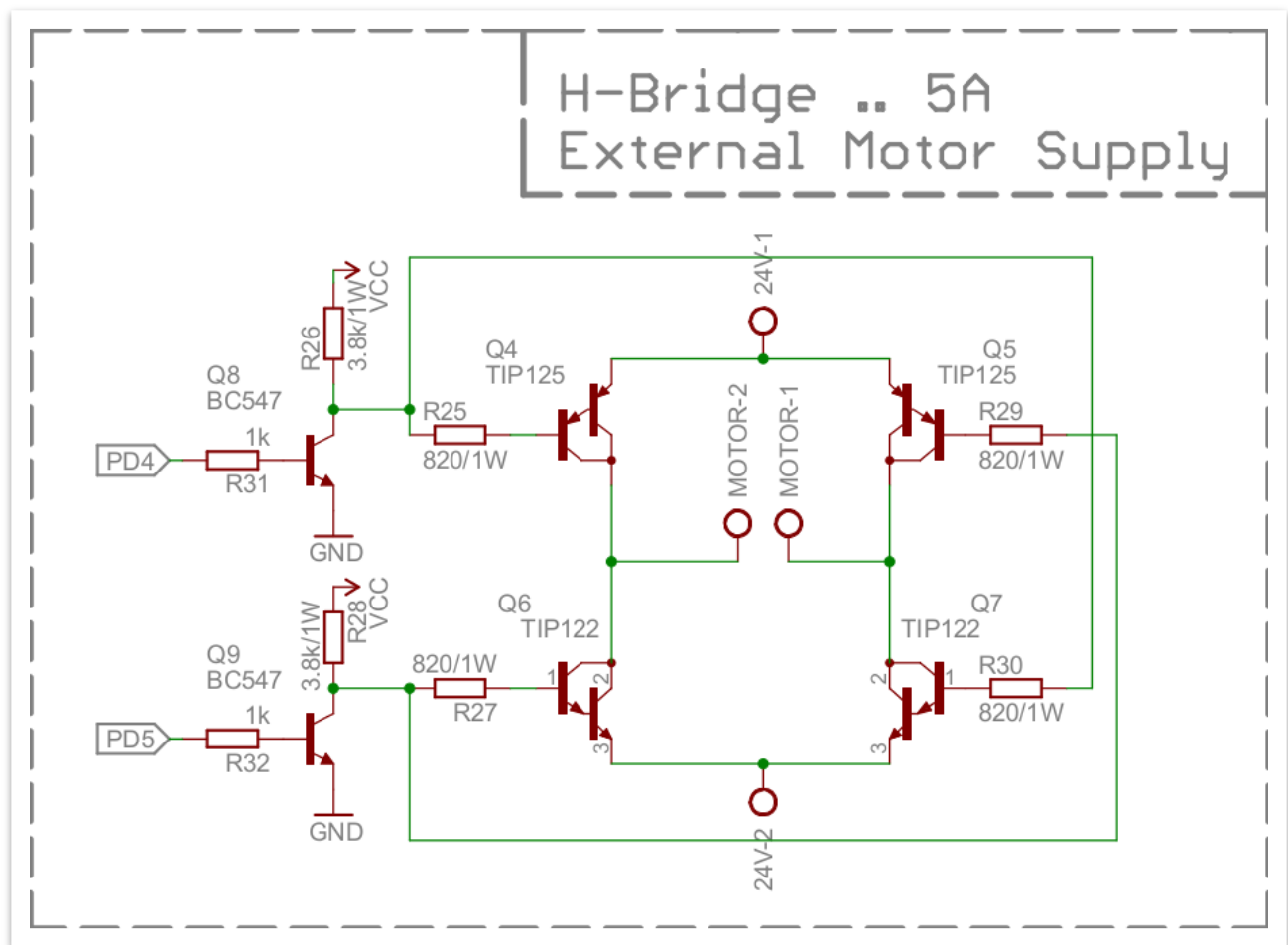- CLK → PORTB.7 (PB7(SCK))
- CD/DAT3 → PORTB.1 (PB1)

- **UART Interface:**
  - Tx → PORTD.1 (PD1)
  - Rx → PORTD.0 (PD0)

- **H-Bridge up to 5A for one DC motor:**
  - PORTD.4 (PD4)
  - PORTD.5 (PD5)

H-Bridge .. 5A
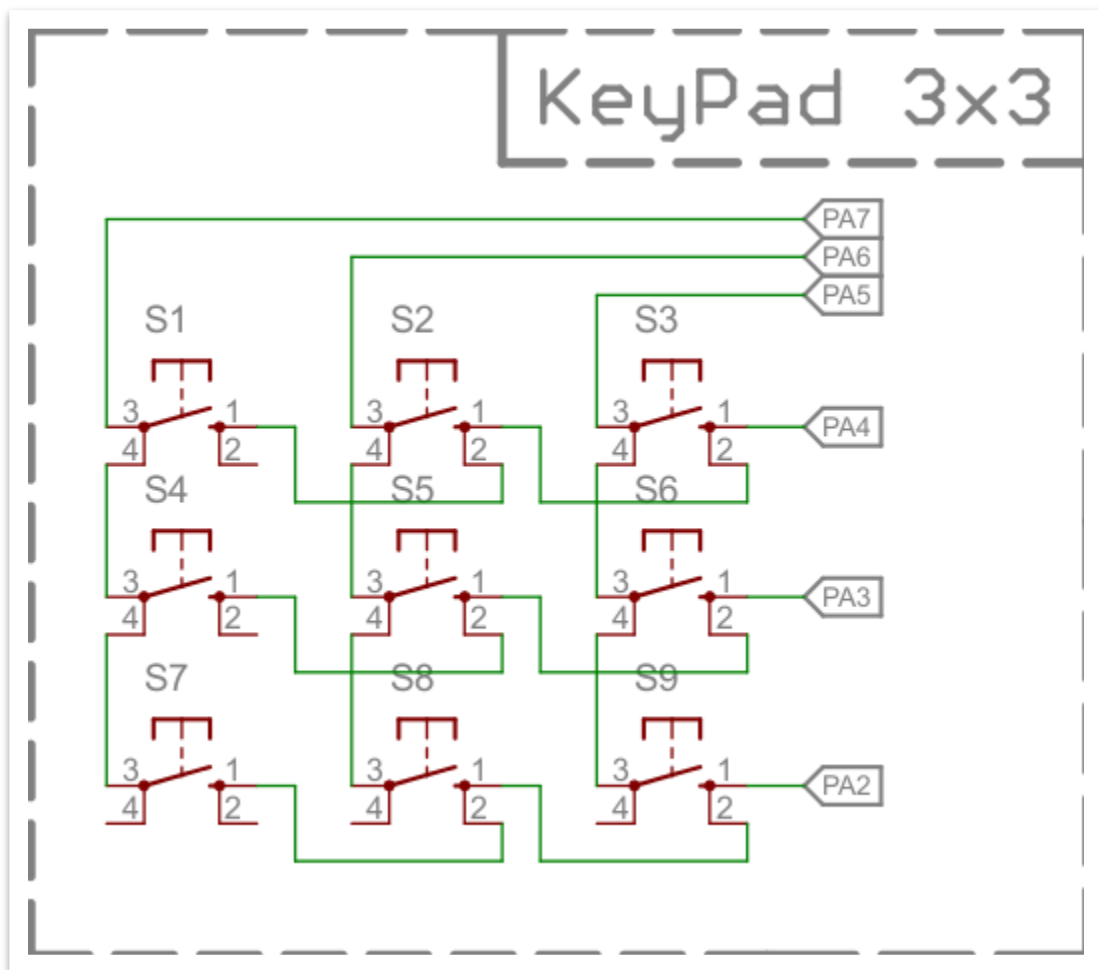External Motor Supply

- **Keypad matrix 3x3:**
  - **Columns:**
    - Column1 → PORTA.7 (PA7)
    - Column2 → PORTA.6 (PA6)
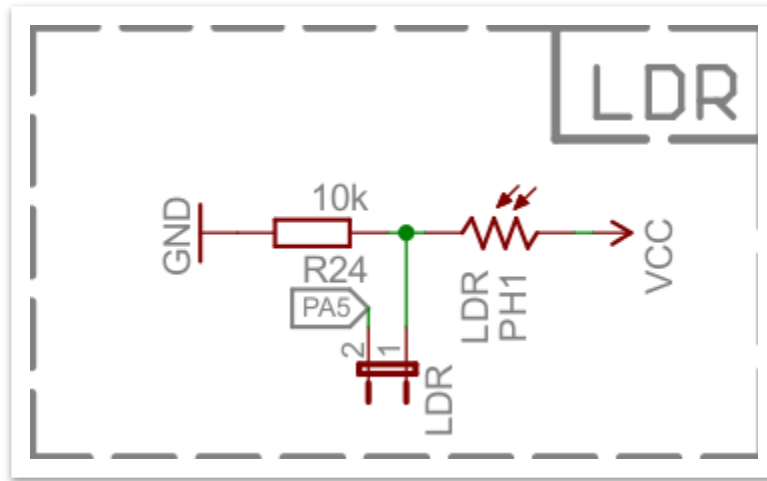   - Column3 → PORTA.5 (PA5)
  - **Rows:**
    - Row1 → PORTA.4 (PA4)
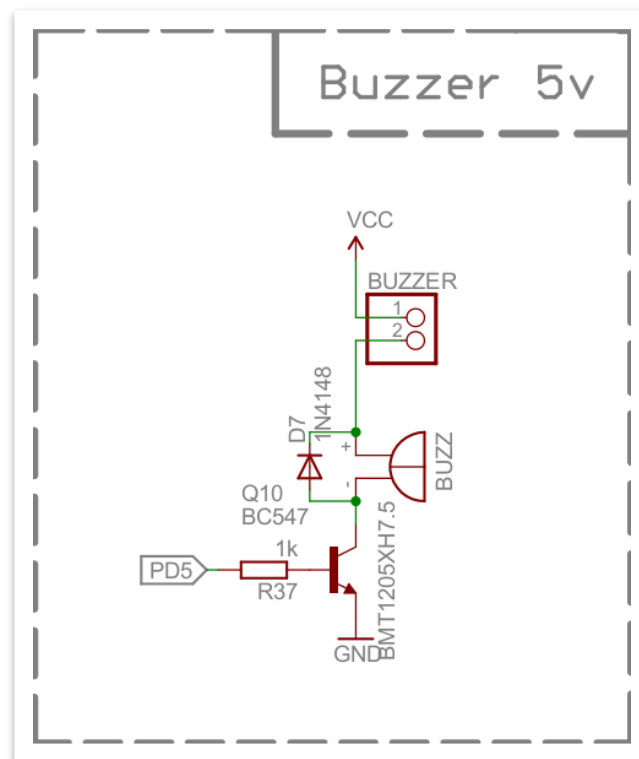   - Row2 → PORTA.3 (PA3)
    - Row3 → PORTA.2 (PA2)

- **Light Sensor:**

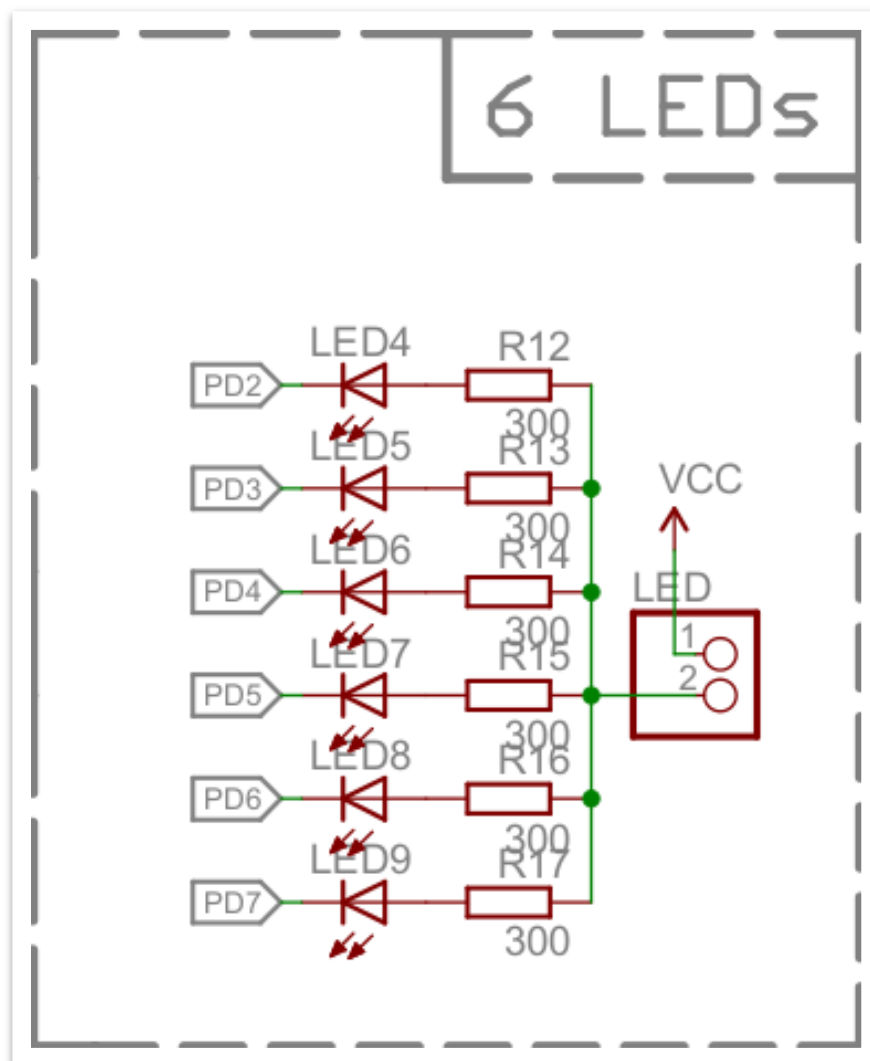 - PORTA.5 (PA5)

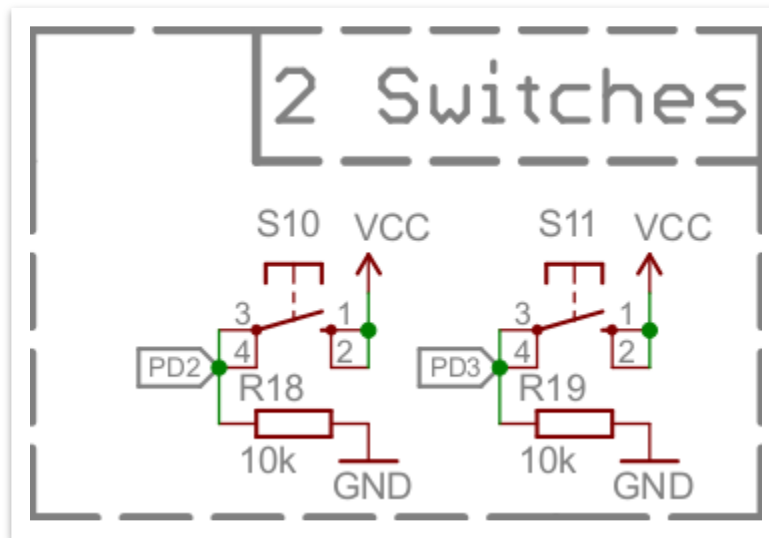---

- **Buzzer:**

  - PORTD.5 (PD5)

- **6 LEDs:**

  - LED4 → PORTD.2 (PD2)
  - LED5 → PORTD.3 (PD3)
  - LED6 → PORTD.4 (PD4)
  - LED7 → PORTD.5 (PD5)
  - LED8 → PORTD.6 (PD6)
  - LED9 → PORTD.7 (PD7)

- **2 Push Buttons:**
  - S10 → PORTD.2 (PD2)
  - S11 → PORTD.3 (PD3)

- **2 Potentiometer connected on ADC.**
  - 5 KΩ Potentiometer.
    - R10 → ADC0 (PA0)
    - R11 → ADC1 (PA1)