Microcontroller Interfacing

# Specifications

## Connections:

### STM32F051C6T6

| **Pin Number** | **Connection** |
| --- | --- |
| 8 | GND |
| 9 | +3.3V |
| 23 | GND |
| 24 | +3.3V |
| 30 | RXD |
| 31 | TXD |
| 45 | SCL |
| 46 | SDA |
| 48 | +3.3V |

### CH340G

| **Pin Number** | **Connection** |
| --- | --- |
| 1 | GND |
| 2 | PA10 |
| 3 | PA9 |
| 5 | D+ |
| 6 | D- |
| 16 | +3.3V |

### AT24C256C-SSHL-T

| **Pin Number** | **Connection** |
| --- | --- |
| 4 | GND |
| 5 | PB9 |
| 6 | PB8 |
| 8 | +3.3V |

### MICROXNJ

| **Pin Number** | **Connection** |
| --- | --- |
| 1 | +3.3V |
| 2 | UD- |
| 3 | UD+ |
| 5 | GND |

## Additional specifications:

The microcontroller must receive a varying voltage from 4 of its GPIO pins, as well as serial data from 1 of its GPIO pins. The microcontroller must convert these varying voltages into a digital value. The microcontroller must store these values in the EEPROM chip and must be able to retrieve this data. The microcontroller must send this data to the CH340G bridge interface when required. The subsystem must receive 5V DC from the MICROXNJ USB connector and must connect it to the power subsystem to be converted into 3.3V DC. The subsystem must run off 3.3V DC.

# Draft Bill Of Materials

| **Component** | **Function** | **Price** |
| --- | --- | --- |
| MicroXNJ | USB 2.0 Female Connector | $0.03 |
| AT24C256C-SSHL-T | EEPROM | $0.52 |
| CH340G | UART to USB tranciever | $0.47 |

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# Submodule Interfaces

## MICROXNJ

This USB interface will receive 3.3V DC from the STM32F0C6T6 microcontroller, as well as data through two lines from the CH240G chip. The interface will send data through two lines.

## AT24C256C-SSHL-T

This EEPROM chip will receive 3.3V DC as well as a 12MHz clock signal and data from the STM32F051C6T6 microcontroller. The chip will send this data back to the microcontroller when requested.

## CH340G

This bridge interface chip will receive 3.3V DC, as well as data through two lines, from the STM32F0C6T6 microcontroller. The chip will send data to the MICROXNJ interface through two lines.

## STM32F051C6T6

This microcontroller chip will send to and receive data from the AT24C256C-SSHL-T EEPROM chip through two lines. The chip will receive 3.3V DC from the power subsystem. The chip will send data to the CH340G bridge interface chip through two lines.