What do we want the main diagnostic board to do?



1. Main Board Components:
   1. Parts:
      1. ATMEGA2560 (MCU)
      2. Two Pin Connector



* + - 1. GND / VCC (5v)
    1. Crystal (16 Mhz) ([ECS-160-20-5PX-TR](https://www.digikey.com/product-detail/en/ecs-inc/ECS-160-20-5PX-TR/XC1282TR-ND/765265))
       1. Capacitors x2
    2. Decoupling Capacitors
    3. Pull Up Resistor

1. Interface with the other mini boards:
   1. Specifically:
      1. Temperature Sensor
      2. LED Feedback w/ Neopixels
      3. Current Sensor
      4. Decoupled Motor Detection
   2. How: Connectors using CAN bus communication or **I^2C protocol**
   3. What Parts:
      1. 5 Pin Connector (WM18933-ND) x 5
         1. GND / VCC (5v) / SDA / SCL
2. Interface with an external display
   1. How: Radio
   2. What Parts:
3. Interface with the Mast Status Panel:
   1. How: I2C
   2. What Parts:
4. Interface with Logic Board:
   1. How: 5 Pin Connector
   2. What Parts:
5. Interface with the Estop Board:
   1. How: 3 Pin Connector
   2. What Parts:
      1. Two Pin Connector
6. **Read/Write to a SD Card**
   1. How: SPI directly to the card
   2. What Parts:
      1. SD CARD
      2. Level Shifter (5v -> 3v3)