MIDI ROBOT

**What is MIDI:**

* Description / overview of the project:
  + What is MIDI
  + What does it do
* Features and capabilities:
  + Non-specific features
  + Some use cases? (maybe one the demos we will do)
* The motivation behind the project:
  + What motivated us to embark on this project
  + How does it help students (middle-school?, high-school, undergrad, grad?)
* Acknowledgements and credits

**Hardware Documentation:**

* List of Hardware Components:
  + Which components to be purchased
  + Which components to be printed
  + Links to purchasing/ links to cad files
* Electronic Circuitry:
  + Electronic Diagrams
  + PCB design to be printed if desired
* Connecting it all up:
  + What needs to be connected to what
* What is modular and explanation of the things, what can be added etc.
* Physical limitations for the robot

**Software Documentation:**

* Architecture Overview (block diagram maybe from drawio etc.)
* Software Architecture details:
  + Software environment requirements:

Should also define what is optional and what is compulsory

* + - **For the PC/ Raspberry PI:**
      * What ubuntu version used
      * Ubuntu Packages required
      * ROS2 version and link to install and setup
      * Python version used and what versions have been tested
      * Python Packages required with the pip installs
      * Github repo to clone for ROS usage
      * Links to code for pure python use

AND/OR

* + - **Docker Setup Instructions**
      * Which docker images used
      * Links to Dockerfile, bashrc, entrypoints.sh files
    - **Pi Pico / Esp:**
      * Link on how to install circuit python
      * Link to code running on Pi Pico / Esp
* API Documentation:
  + Briefly explain what the main classes/ functions/ modules do
  + Pure python vs. ros implementation, differences etc.

**Getting Started (like a quick start guide):**

* Connecting Software with Hardware:
  + How to confirm all software and hardware is working as expected hand in hand
* Some basic troubleshooting now that everything is connected together
* Basic demos (not requiring lidar- only based on barebones sensors)

**Detailed Usage:**

* Detailed instructions on how to operate the robot
  + As an example, show how we setup and used the robot in our demos
* Configuration and customization options?
* Command-line interface (CLI) or graphical user interface (GUI) usage

**Further Comments:**

Add photos for all critical steps so users can compare and see what to expect.

Links to code on Github whenever it is referenced

Maybe have some technical specifications like robolaunch does

Maybe Migrate the whole document to .md on github.  
Or maybe as a website hosted by github  
Or maybe just a pdf document  
Or maybe all the above