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The purpose of this document is to outline the basic ideas behind the python front end of my custom logic analyzer.

I have the ambition of creating a logic analyzer to help with my embedded programming tasks. The purpose of a logic analyzer is to poll digital pins and produce the graphs on a desktop environment. This allows for developers to debug a device that has no output and can ensure that a device is working properly.

Normally a good logic analyzer costs around the $500 mark and cheap ones are in the $50 range. For $50 it would be more fun to just mess around and build my own architecture than spend money on something that might suit my needs.

The base idea is simple, design arduino code that acts as a slow reader for whatever pins I designate and save all the information to ram so I don't have to worry about serial overhead while I poll. If I standardize the data packets however I could design multiple different analyzers if I get my hands on more capable micro controllers.

This is where the python comes in. To start I want to establish a base gui using TKinter and send data packets using pySerial. I'm not going to worry about displaying the data yet as once I am done with the gui, I will have to move over the the c/c++ side to write the embedded, other half of the project.

The deliverables for this project is to:

- Start up a gui page
- Have a drop down menu for the available com ports
- Send a serial packet to confirm connection
- Send a serial packet to start polling

By accomplishing these four tasks, I should have the core skills to program the rest of the project as I buy more hardware and develop the embedded side forward.

TKinter can be annoying to install properly and get going so I will also use pyinstaller to generate an executable along with the source code so that the demo will launch properly.