

To be able to set a reference for the system, and to see where the system is at any given time, a user interface needs to be implemented. There are multiple ways in which a user interface can be implemented. Two will be discussed in this section, a command-line interface and a hardware interface.

0.0.1 Command-line interface

A command-line interface is practical for designing and tuning of the system, since it allows for data to be sent to a computer and analyzed. It is not the most user friendly way to interact with a system , and therefore it should not stand on its own and is more suited for debug operations.

Logging data is essential for tuning of the system, and therefore a command-line interface has been implemented.

Implementation of the command-line interface is done by utilizing the USB port on the Tiva to communicate with a computer via a UART interface.

0.0.2 Hardware interface

A hardware interface is more user friendly, and it is possible to use without connecting a computer to the system. Since the system already is equipped with a matrix keypad and a small LCD screen, these have been used to create a hardware interface.

Since the LCD screen only can display 16X2 characters only the most essential information, the current position and reference is shown.

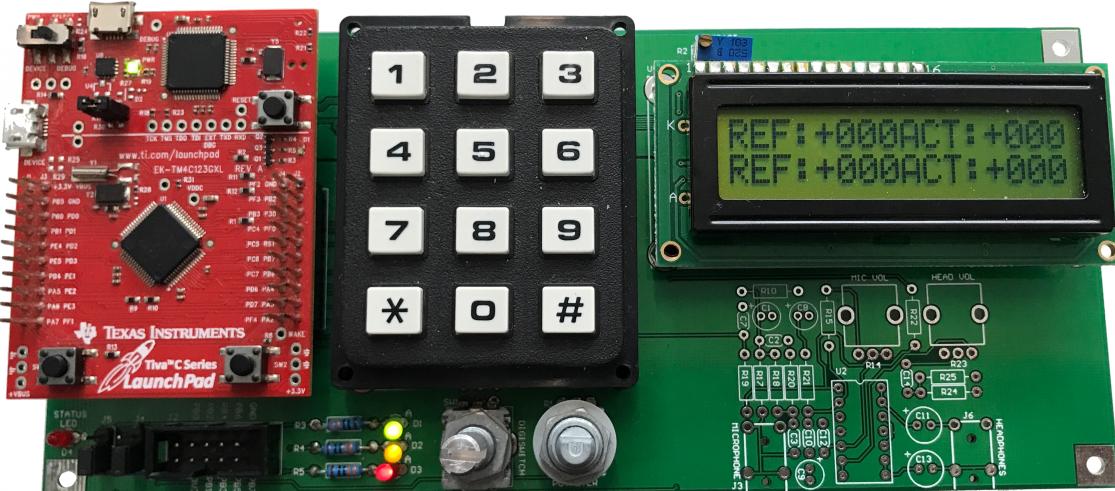


Figure 1: User interface.

0.0.3 User interface summary

These two systems provide a way to interact with the system, either in order to extract data or change the systems reference point.

positions are?

designing?

however

and should therefore not stand alone, but used as a debug-tool

Since the desired system response is achieved through tuning of the controller gains, it is necessary to have access to the system response data. For this reason it is chosen to implement a command-line interface.

is realised by utilizing ...

. This is then used to communicate with a computer via a UART interface

havd er argumentationen for dette?

furthermore it doesn't require a computer connected to the system

these will be used to create the hardware interface

However the LCD is only capable of displaying 32 characters (or 16x2), thus