Floating point display for the UNO

A new floating point display for the UNO has been developed. A system diagram is shown over the page and a photograph below. Two ATtiny devices are used to drive the display and the I2C bus is used to connect them to the UNO.

Whenever the UNO has new data to display it connects itself to the TWI/I2C bus. The master interface which polls the UNO every mS:

       Takes the data
       Converts it to a string if necessary
       Displays the lower four digits
       Forwards the upper digits to the other device

Four data types are recognised:

Floating point strings	Integer strings
Floating point data	Integer data

When the master device detects a string it converts it to a numbers and returns the result to the UNO. When it detects a number it simply displays it.
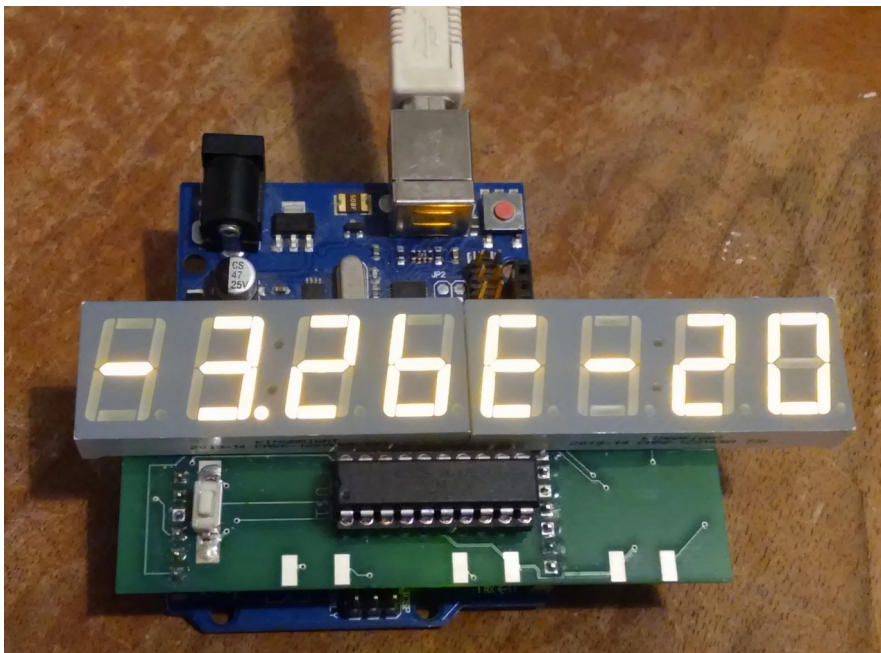
Photograph of the display plugged into a UNO.

The switch is used to select one of two intensity levels and control the display of the exponent.

Unused pads are for switches for entering data or for general purpose use.

A UNO template is provided.
This has been developed to test the display. It includes

       Askii_subroutines.c file   UNO_TWI_subroutines.c file
       A header file contains a "setup_328_HW" macro which

Initialises the IO	Sets up the watchdog
Resets the display devices	Initialises the UART
Sets the UNO address	Initialises the display

The Askii subroutines include
        Num_from_KBD()   and   Float_from_KBD()
These enable users to enter numbers from the PC keyboard.
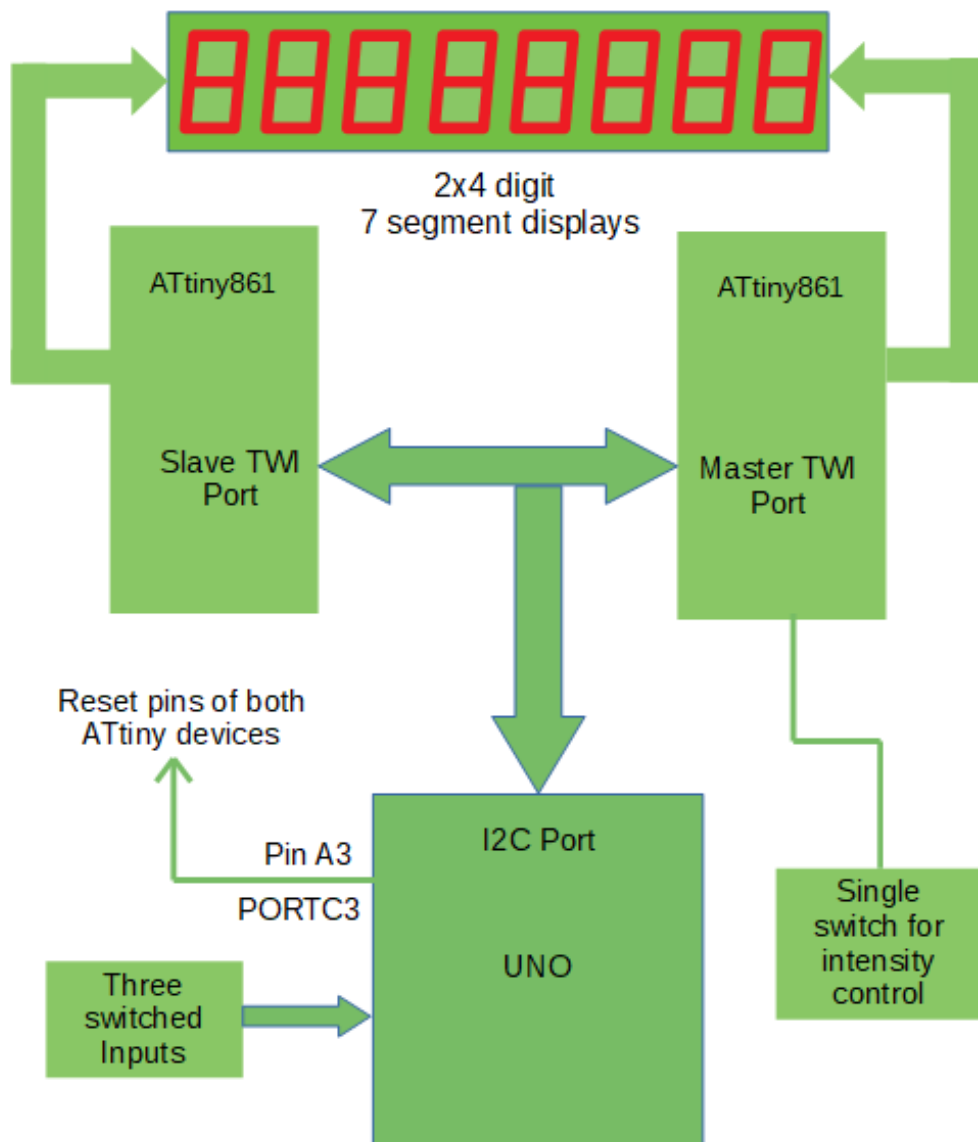
UNO_TWI_subroutines include:
        int_string_to_display()   float_string_to_display()
        float_num_to_display()   int_num_to_display()
        The interrupt service routine that responds to to polling from the master device.

Block diagram of UNO floating point display
Connected to the UNO

The three switched inputs are for entering
numeric data or for general purpose use.