Displaying text on a PmodNAV

This demonstration shows how to display text on a PmodNAV using the board.

The Digilent Pmod NAV is required. In this example it should be connected to PMODA.

In [1]:
```
from pynq.overlays.base import BaseOverlay
from pynq.lib import Pmod_NAV

base = BaseOverlay("base.bit")

pmod_nav = Pmod_NAV(base.PMODA)
```

In [2]:
```
help(pmod_nav)
```

```
Help on Pmod_NAV in module pynq.lib.pmod.pmod_nav object:

class Pmod_NAV(builtins.object)
 |  Pmod_NAV(mb_info, text=None)
 |
 |  This class controls an NAV Pmod.
 |
 |  The Pmod NAV uses the LSM9DS1 3-axis accelerometer, 3-axis gyroscope, 3-axis magn
etometer, plus the LPS25HB digital barometer to provide users with 10-DOF functionali
ty.
 |
 |  Attributes
 |  ----------
 |  microblaze : Pmod
 |      Microblaze processor instance used by this module.
 |
 |  Methods defined here:
 |
 |  __init__(self, mb_info, text=None)
 |      Return a new instance of an OLED object.
 |
 |      Parameters
 |      ----------
 |      mb_info : dict
 |          A dictionary storing Microblaze information, such as the
 |          IP name and the reset name.
 |      text: str
 |          The text to be displayed after initialization.
 |
 |  get_ag_id(self)
 |      The function gets the device id for all the instruments.
 |
 |      Returns
 |      -------
 |      list
 |          A list of the device ID Accel-Gyro, Mag and alt.
 |
 |  read_accel(self)
 |      The function gets the device id for all the instruments.
```

```
|
|      Returns
|      -------
|      list
|          A list of the device ID Accel-Gyro, Mag and alt.
|
|  ----------------------------------------------------------------------
|  Data descriptors defined here:
|
|  __dict__
|      dictionary for instance variables (if defined)
|
|  __weakref__
|      list of weak references to the object (if defined)
```

You should now see the text output on the OLED, so let's try another message.

In [3]:
```
deviceID = pmod_nav.get_ag_id()
print(bin(deviceID))
```

```
0b1111111101101000
```

That's it! Please try to write your own messages to the PmodOLED.

In [29]:
```
accel = pmod_nav.read_accel()
print(accel)
```

```
[4294967295, 0, 0]
```

In [19]:
```
deviceID = pmod_nav.get_mag_id()
print(bin(deviceID))
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
<ipython-input-19-50f93a18d55e> in <module>
----> 1 deviceID = pmod_nav.get_mag_id()
      2 print(bin(deviceID))

AttributeError: 'Pmod_NAV' object has no attribute 'get_mag_id'
```

In [8]:
```
help(pmod_oled)
```

```
Help on Pmod_OLED in module pynq.lib.pmod.pmod_oled object:

class Pmod_OLED(builtins.object)
 |  Pmod_OLED(mb_info, text=None)
 |
 |  This class controls an OLED Pmod.
 |
 |  The Pmod OLED (PB 200-222) is 128x32 pixel monochrome organic LED (OLED)
 |  panel powered by the Solomon Systech SSD1306.
 |
 |  Attributes
 |  ----------
 |  microblaze : Pmod
 |      Microblaze processor instance used by this module.
 |
 |  Methods defined here:
```

```
|
|  __init__(self, mb_info, text=None)
|      Return a new instance of an OLED object.
|
|      Parameters
|      ----------
|      mb_info : dict
|          A dictionary storing Microblaze information, such as the
|          IP name and the reset name.
|      text: str
|          The text to be displayed after initialization.
|
|  clear(self)
|      Clear the OLED screen.
|
|      This is done by sending the clear command to the IOP.
|
|      Returns
|      -------
|      None
|
|  draw_line(self, x1, y1, x2, y2)
|      Draw a straight line on the OLED.
|
|      Parameters
|      ----------
|      x1 : int
|          The x-position of the starting point.
|      y1 : int
|          The y-position of the starting point.
|      x2 : int
|          The x-position of the ending point.
|      y2 : int
|          The y-position of the ending point.
|
|      Returns
|      -------
|      None
|
|  draw_rect(self, x1, y1, x2, y2)
|      Draw a rectangle on the OLED.
|
|      Parameters
|      ----------
|      x1 : int
|          The x-position of the starting point.
|      y1 : int
|          The y-position of the starting point.
|      x2 : int
|          The x-position of the ending point.
|      y2 : int
|          The y-position of the ending point.
|
|      Returns
|      -------
|      None
|
|  write(self, text, x=0, y=0)
|      Write a new text string on the OLED.
|
|      Parameters
|      ----------
```

```
|      text : str
|          The text string to be displayed on the OLED screen.
|      x : int
|          The x-position of the display.
|      y : int
|          The y-position of the display.
|
|      Returns
|      -------
|      None
|
|  ----------------------------------------------------------------------
|  Data descriptors defined here:
|
|  __dict__
|      dictionary for instance variables (if defined)
|
|  __weakref__
|      list of weak references to the object (if defined)
```

In [ ]: