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Athena - Joystick

Athena to Joystick Interface

There are a couple of different ways to interface an analog PC joy stick to a microcontroller. If you have one of the older (not digital) joy sticks this method is by far the easiest.

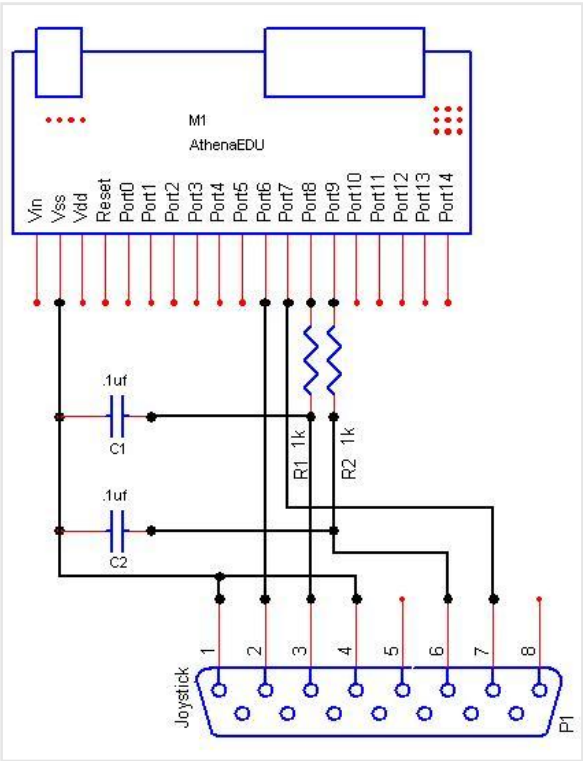
Inside the PC joystick they manufactures only use 1 side of a potentiometer so its not feasible to use an analog to digital interface. Its much better to run the joystick potentiometer across a capacitor and measure how long it takes to discharge.

The problem here is that the common side of all the potentiometers is tied to +5v. This means you have to pull the port low then see how long it takes to charge a capacitor once the GND is removed. While this can be done I found it much easier to use the following method.

In this method we tie the +5v and GND leads on the joystick together and feed them to Vcc (gnd) on our microcontroller. Now all we have to do is use the pot command to read the joystick.

We used the internal pullup resistors on the Athena to pull the ports connected to the buttons high. Now when one of the joystick buttons are pressed the port goes low.

Hookup



Schematic 1

Software

```
'Simulator Data
'-------------------------------------
'SIM6: 1,1,1,1,1,1,1,1,1,1,1,1,1,1,0
'SIM7: 1,1,1,1,1,1,1,1,1,1,1,1,1,0
'SIM8: 100,101,100,102,100,105,100,200
'SIM9: 105,128,240,100,101,105,100
'-------------------------------------

'Define some variables and constants
'------------------------
  dim xreading,yreading
  const xport 8
  const yport 9
  alias button1 inp6
  alias button2 inp7
'------------------------

'Setup
'-----------------------------------
  output xport
  output yport

  pullupon   'Hold ports 6 and 7 high
'-----------------------------------


'-----------------------------------------------------
'Main Program Loop
'-----------------------------------------------------
loop:
  pot xport,3,xreading
  pot yport,3,yreading

  print xreading," ",yreading," ",button1," ",button2
  goto loop
```

This program should work on the Athena and Athena485 without modifications. Some slight changes will be needed on the Perseus. Play with the capacitor and the devisor argument on the pot command to create different ranges.

Related Products

Athena ..... http://kronosrobotics.com/xcart/customer/product.php?productid=16276
Athena485 ..... http://kronosrobotics.com/xcart/customer/product.php?productid=16249
Perseus ..... http://kronosrobotics.com/xcart/customer/product.php?productid=16382
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Athena EDU ..... http://kronosrobotics.com/xcart/customer/product.php?productid=16299
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