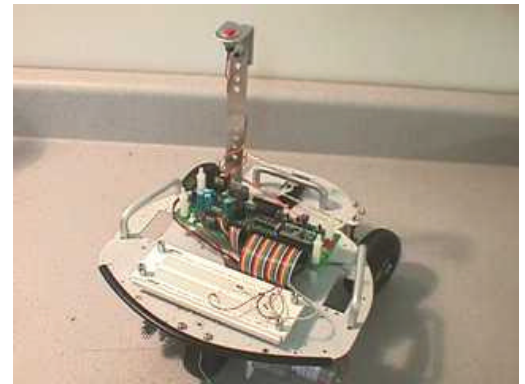


An emergency stop button can save the life of your robot. This is an easy to reach, easy to push button used to immediately stop the robot. Often times the robot can run mad and head right for the edge of the table, head right for the lawnmower, or head right for the poor deaf/blind cat. In these instances its nice to have a quick and easy STOP button. This application note explains how to connect one of these life saving devices to your ARobot. There is some soldering required in this application note. Some mechanical engineering is also required for this application (bolting brackets together, drilling, etc).



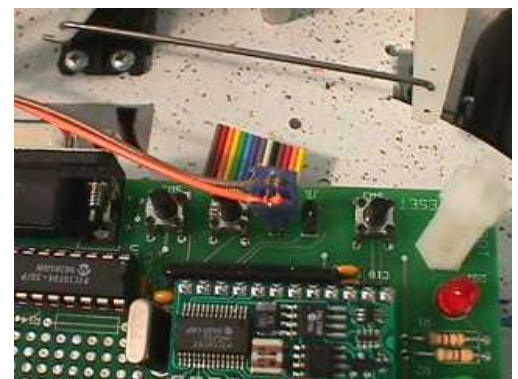
Parts List

Go and pick out a nice push button at Radio Shack or other electronic supply store. They have many sizes and colors. Get one that makes contact easily. The wire can be any wire that is not tied down in the house. The aluminum brackets are used to mount the button up off the robot within easy reach of a jogging operator. These parts can also be found at Mouser Electronics <http://www.mouser.com> or Digi-Key <http://www.digi-key.com>.

Part	Part #	Price
Momentary Normally open push button, SPST (single pole, single throw)		
Wire		
Aluminum L brackets		
2 pin connector Radio Shack #11929726 or 40 pin expansion cable.		
Various screws, nuts, spacers		

Cable

A cable should be made that will connect one side of the push button to an input pin on the Basic Stamp and the other side to ground. Pushing the button will cause the pin to become low. Wiring can be made through the expansion connector or by attaching a cable directly to one of the jumper connectors. Input # 12 is used in our example program but you can use another unused pin if you want.



See our web site at:

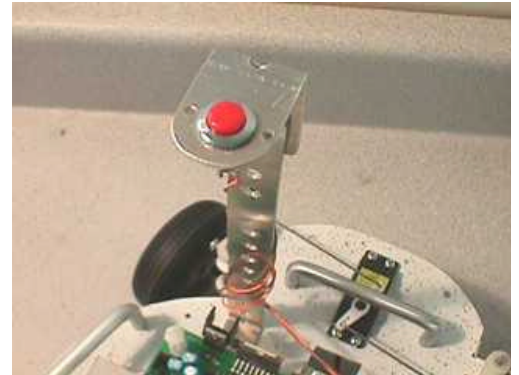
<http://www.robotics.com/arobot>

for additional application information.



Mounting

Determine how your button will be attached to the ARobot (mechanical engineering). Drill appropriate holes. Before mounting the hardware to the ARobot body, attach the button to the hardware (brackets). Then solder one wire to each lead on the button. Be sure that contact is not made between these two wires. Then attach the 2 pin connector to the other end of the wires. It does not matter which wire attaches where. Next, mount the brackets to the ARobot body. Bolt it down tight so that it does not come loose. Then wrap the extra wire around the bracket and plug in the connector to the ARobot board as shown in the picture.



Software

The following example program uses the E-Stop switch to stop ARobot movement. You can incorporate this function into almost any program you wish.

```
'estop.bs2          www.robotics.com

'This routine demonstrates how to use an emergency
'stop button. The idea behind the estop button is to
'have a button that stops the robot before it can
'fall down stairs, into the fireplace, or run over
'the cat.

charn  var      byte  'get chars from coprocessor.
red    con      10
net    con      8     'coprocessor pin.
baud   con      396  'coprocessor baud rate.
speaker con     9     'speaker pin.
      low      speaker 'turn off speaker.

main
      gosub motor1  'start motor.
main1
      'start of main loop.
      if in12 = 0 then estop 'check estop button.
      goto  main1  'end of main loop.

'-----
'signal that the estop button has been pushed.
'estop
      gosub stopmtr
      gosub honk      'honk a couple of times.
      gosub honk
      gosub honk
      gosub honk
      gosub honk

estop1
      low  red      'flash red led and honk.
      gosub honk
      pause 500
      high red
      pause 500
      goto  estop1

'-----
'turn motor 1 on.
'
motor1  'mtr 1,fwd,spd,dis.
        serout net,baud,["!1M111FFFF"]
        serin net,baud,[charn] 'get ack char.
        if charn<>"A" then motor1 'keep trying.
return

'-----
'turn motor 1 on.
'
stopmtr 'mtr 1,fwd,spd,dis.
        serout net,baud,["!1M110FFFF"]
        serin net,baud,[charn] 'get ack char.
        if charn<>"A" then motor1 'keep trying.
return

'-----
'beep beep honk honk.
'
honk
        freqout speaker,200,1500
        low speaker
return

'-----
'ARRICK
'ROBOTICS
www.robotics.com
```

