

BEAM SENSORS - STATE SENSORS

State sensors tell your 'bot something about its condition -- tilt, temperature, and the like. These can be used to change your 'bot's behavior in ways (ideally) that help it protect itself and get around.



A number of types of tilt switches are commercially available -- all use some sort of moving contact (in some cases a blob of mercury, in others a metal ball) to short out various contacts. You can use these to cause your 'bot to do something special if...

Your BEAMbot has flipped "upside down"

Your BEAMbot is on a "dangerous" slope, and needs to turn in order to avoid rolling

Your BEAMbot is attempting to climb up / down a slope that is beyond its capabilities, and needs to reverse

'Most any of these will work for you; personally, I try to avoid tilt switches containing mercury since its toxic, and generally contained in glass vials that are fairly easy to accidentally break open.

Temperature sensors



Thermistors are the most common temperature sensors you'll run across -- they're just temperature-sensitive resistors (resistance goes down as temperature goes up). The internal chemistry of thermistors is quite tailorable -- this allows manufacturers to make thermistors with a wide selection of temperature sensing ranges.

Note that thermistors tend to exhibit a fair amount of variability from unit to unit. So if you're using a pair of thermistors to give your 'bot the ability to find warm or cool areas, you'll want to incorporate a potentiometer to allow you to "tune" their response a bit (or else, buy a number of thermistors and attempt to find a "matching" pair).

AD-590s are temperature sensing integrated circuits which output a current proportional to temperature. While more expensive than thermistors they are also much more accurate. This allows you to dispense with matching and tuning should you be using temperature sensors as a "homing" device.

Source: http://www.solarbotics.net/library/pieces/assy_sensors_state.html