# Simple Wireless and Wired Emergency Stop System

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This circuit allows a cheap or discarded wireless doorbell set (i.e. transmitter and receiver unit) to be used as a remote emergency stop on a high-power electrical motor or motor controller system.

When the button on the wireless doorbell unit is pressed, the resulting 0 V signal from the receiver unit ('motor E-Stop') causes PNP transistor T1 to be turned on. Via transistor T2, latching relay Re1 then changes state. The same is achieved when the wired Motor E-Stop button, S1, is pressed. The reset button, S2, must be pressed to reverse the state of the latching relay.

The choice of T1 and T2 is not critical — they are general purpose,



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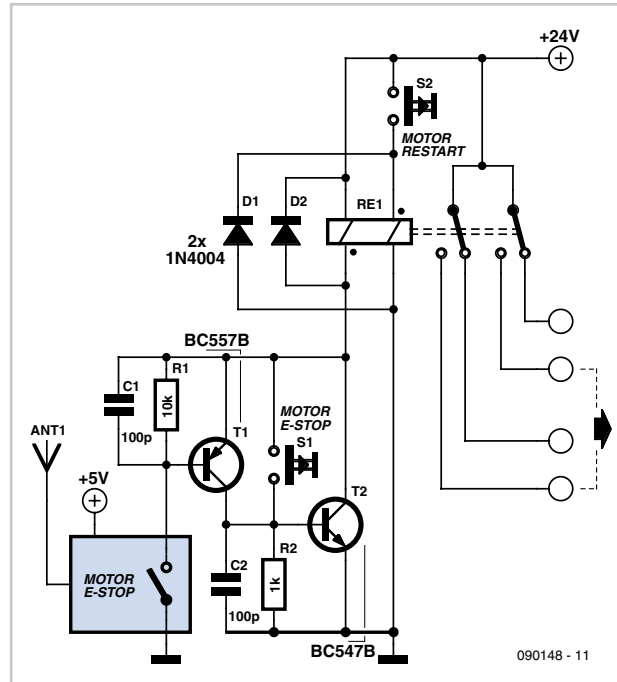
low voltage PNP and NPN switching transistors respectively, for which many equivalents exist.

As an EMC precaution, small capacitors (100 pF) are fitted across base resistors R1 and R2, preventing the motor from being shut down by external electrical noise and interference. The set and reset coils of the latching relay each have a flyback diode to prevent back-emf peaks damaging T1 and T2. The contacts of the latching relay can be used to switch a more powerful relay, or a motor driver.

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