

KEYPAD SCANNING ROUTINE:

The keyboard is multiplexed in a 2x5 array. It is scanned by INT5 and INT6 lines in conjunction with port PG(0..4)

While waiting for the key-press, the interrupts should be armed (negative going edge), and configured as inputs, while port PG is configured as outputs, with all bits set low. When any key is pressed, either of the two interrupts will be triggered. This trips the interrupt routine.

The interrupt service will scan the keyboard to determine which key(s) are pressed, and will return this value to the main program flow. The scanning is performed as follows:

1. Disarm INT 5 and 6.
2. Debounce: a 20 ms delay will get rid of signal bouncing (this is critical when scanning switches).
3. Set port PG to input state.
4. Set INT 5 line to output low state, and INT6 to input state.
5. Reading PG(0..4) will provide states of the 5 switches on INT5 branch. A 0 will mean that the switch is pressed. Switches on INT6 branch will have no effect.
6. Set INT 6 line to output low state, and INT5 to input state.
7. Reading PG(0..4) will provide states of the 5 switches on INT6 branch. A 0 will mean that the switch is pressed. Switches on INT5 branch will have no effect.
8. Depending on program flow, it may be a good idea to wait for a switch release, not to trigger the interrupt when releasing the switch (debouncing noise).
9. Restore the INT5 and 6 to inputs, and PG(0..4) to outputs with low on all bits.
10. INT5 and 6 should be re-armed after the interrupt has been exited.

CONF

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