

7 Set up a logic system

1. Build the Flowcode program which will light the LED only when switches A0 and A2 are pressed AND switch A1 is NOT pressed.
2. Connect the Switch Unit to PORT A, and create three push switches, connected to Port A0, A1 and A2.
3. Connect the LED Unit to PORT B, and create one LED, on B0.
4. Configure the Loop icon as in previous programs, and set up the other components as follows:

Display name	Read switch A0
Variable	switchA0
Port	PORT A
Input from	Single Bit 0

(Set up the next two Input icons in the same way so that the setting of switch A1 is transferred to variable 'switchA1', and the setting of switch A2 is transferred to variable 'switchA2')

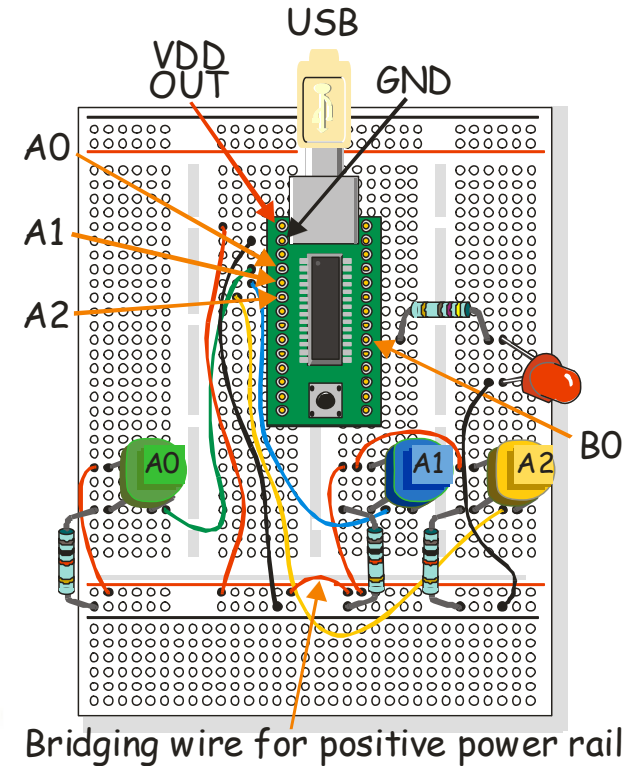
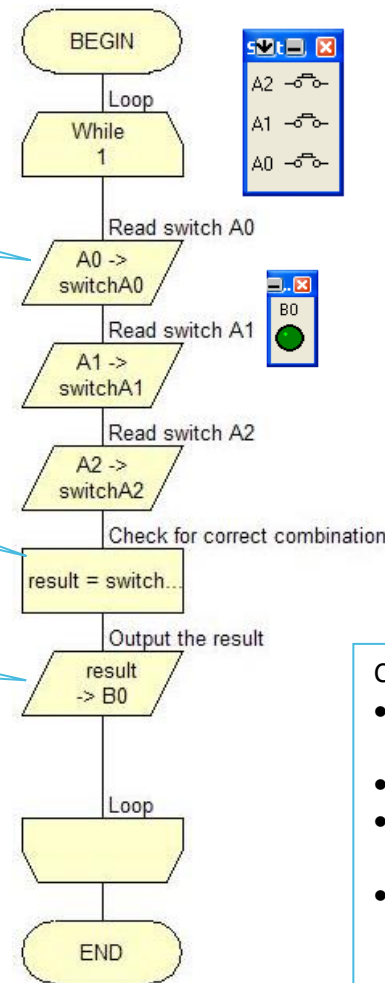
Display name	Check for correct combination
Calculation	result = switchA0 AND switchA2 AND NOT switchA1

Display name	Output the result
Variable	result
Port	PORT B
Output to	Single Bit 0

5. Save the Flowcode program, and then compile it to the chip.
6. Build the circuit, shown opposite, on the prototype board.
7. Test the circuit by observing the LED while pressing A0 alone, then A1 alone and finally pressing both switches.

Further work:

Modify the program so that the LED lights if switch A1 is pressed provided that switches A0 and A2 are NOT pressed.



Circuit notes:

- Make sure that the LED is plugged in the right way round!
- The LED is protected by a 470Ω resistor.
- The switches form voltage dividers with the 1kΩ resistors.
- The flat edge of each switch is on the side in the diagram.