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Arduino if statement

by Lewis Loflin This is part of a series on code snippets for Arduino. Many visitors to my Channel Tube and these websites are beginners. They have limited knowledge of programming or hardware. It requires learning both. Think of micro-controllers as a box full of basic logic circuits, gates, etc. To control the box, we need to tell it what hardware to use. We need to tell the box how to manipulate gates and hardware. That's what machine code does. I'm using the Arduino compiler - 1.6.3. The results may differ from other compilers or a non-nano arduino board. Figure 1 shows the launch of the test for the series, in this case arduino nano. I think someone can see their Arduino board of directors, nano and most arduino boards today have an LED on digital PIN 13 (DP13). Using an I2C LCD screen is optional but makes it easier to understand the process. It uses three LEDs in DP9, DP10, DP11. The two open push button keys are normally connected to the ground to the DP2 and DP3. Internal drag used - the droid switch depending on as incorrect or 0. Instead of constantly typing digitalRead(PIN) I created subroutines S1() and S2(). If either S1() or S2() are called back pack switches 1 or open switch 0 - they also update lcd screens. I also wrote a subroutine called POT() which returns the value of 0-1023 of the potentiometer connecting to analog pin 0. The full setting for the chart above is provided at the bottom of the page. This can be cut and directly into your Arduino compiler. is electrically high or 1 5 volts; It's low or 0 0 volts or earth. And true can be replaced with 1 or any non-zero number; false can be replaced with 0. We are concerned with: compare operators == (equal to) != (not equal to) < (less than) > (more than) <= (less or equal to) >= (more or equal to) Boolean operators & (and) || (or) ! (No) from here on out I just address the code within the loop(). void loop() { delay(100); if (S1()) digitalWrite(LED1, 1); else digitalWrite(LED1, 0); } Test 1 note: true = 1; false = 0. Pay attention to the code above. A if statement has a general form: if (the light_led1) turn_off_led1; The Other section is optional. The boolean term status using the correct or incorrect correct LED1 status lights, false led1 conversion status is turned off. The Arduino compiler defines correctly as the correct word, number 1, or any non-zero number. Defines false compiler with false word or number 0. The above code calls the S1() function. If the switch is open in DP2 it returns 0 or incorrectly - so no longer runs and LED1 is off. LED1 is only on while the S1 is pressed back with 1 when called. void loop() { delay(100); if (S1()) digitalWrite(LED1, 1); if (S2()) digitalWrite(LED1, 0); } What we want to push a switch (S1) to turn LED1 Then another (S2) turn LED1 off? We need to leave another part of the function if we leave and use one function if the other. Understand if (S1) is understood if (S1== 1) at any time of the loop is called S1() and return 1 (true) or 0 (incorrect). Another way to write this to do the same thing is if (! S1()) digitalWrite(LED1, 0); // End test loop 4 I rewrite the original code remove line 3 but added a new twist. When the S1 is pressed I want to juggling LED1 lock pin mode. I don't want to leave a statement if until I release the S1. The while (S1()) { } does just that. An while command will check the status of the S1() and return the correct if I press the switch. It switches on an endless loop doing nothing idle () until I release. Below are the code to shut down and switch on LED1 and LED2 with 1 each. void loop() { delay(100); if (S1()) { byte temp = digitalRead(LED1); digitalWrite(LED1, temp); wait for switch open while (S1()) } // end if (S2()) { byte temp = digitalRead(LED1); digitalWrite(LED1, temp); wait for the open switch while (S2()) } // end if } // loop end loop loop blank() { if (S1()) digitalWrite (LED1, above); else digitalWrite(LED1, LOW); if (S2()) digitalWrite(LED2, HIGH); else digitalWrite(LED2, LOW); if (S1() && S2()) digitalWrite(LED3, 1); else digitalWrite(LED3, 0); } // End test loop 5 with the above code if the S1 compact LED1 is released in until the S1. If the S2 compact LED2 is on until the S2 is released. The third statement is if different. Here we use a logical statement and use two & or & ; A single & ; a bit-wise function and will generate a compiling error. Here we are reviewing S1 and S2. The only time both are true (back 1) does the LED3 turn on. A problem occurs when both the S1 and S2 are pressed, all three LEDs are turned on. I want only led3 on . I want 2 other LEDs staying off during the process. On the next page we have a complete engine control program for arduino application. It operates an H bridge with speed control for both directions. Or two unit engines will operate with independent speed control for each engine. Also an ON-OFF master will have power control. It will go to more use for statements if anymore. void loop() { delay(100); if (S1()^1) digitalWrite(LED1, HIGH); else digitalWrite(LED1, LOW); if (! S2()) digitalWrite(LED2, HIGH); else digitalWrite(LED2, LOW); } // End test loop 6 This is a variety of 5 tests to show logical nine and bitwise XOR. They do exactly the same thing and use the same amount of memory when compiled. The functions of S1() and S2() both return real (1) when compressed. Neither or XOR turns true to false, incorrect to true. In both statements S1(), S2() returns incorrectly when not pressed. In both cases with Nine and XOR this is to turn on the actual LED1 and LED2 changes. When both switches are pressed they have a real return that is NOTed or XORed to turn off false LEDs. Videos: My YouTube Videos in Electronics Introduction to Arduino Part 1: Arduino Programming Output Part 2: Arduino Input Programming Part 3: Arduino Analog to Digital Converter Part 4: Using Arduino Pulse Width - Repost Arduino AC Modulation Control Power If () is the most basic statement of all programming control structures. This allows you to make something happen or not, depending on whether a given situation is correct or not. It looks like this: There is a common variation called if-else that looks like this: if (someCondition) { } else { } there's also the else-if, where you can check a second condition if the first is false: if (someCondition) { } else if (anotherCondition) { } You'll use if statements all the time. The following example illuminates the LED on pin 13 (built-in LED on many Arduino boards) if the read value on the analog input goes above the specific threshold. The hardware required BoardPotentiometer or Variable ResistanceCircuitclick image to enlarge the image developed using Fritzing. For more circuit examples, see the Fritzing Project PageSchematicclick image to enlarge codeIn codein the following code, a variable called analogValue is used to store data collected from a strong gauge device attached to the board on analogPin 0. Then this data is compared with a threshold value. If the analog value found above the set threshold built-in LED attached to the digital PIN 13 is clear. If analogValue is found at the threshold < (less than), the LED remains off. See also Appeal 2015-07-29 by SM Last Revised February 05, 2018, at 08:43 PM

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