Lab # 8

Collaboration is encouraged. You may discuss the problems with other students, but you must **write up your own solutions**, *including all your C programs, by yourself. If you submit identical or nearly identical solutions to someone else, this will be considered a violation of the code on academic honesty.*

Assemble an Arudino circuit with two buttons, the LED, and the motor. The circuit should read three binary numbers, n, k and a as follows.

- When the first button is pressed, the value of the bit depends on whether the second button is also pressed. If it is, the bit is 1; if it is not, the bit is 0. (Press and release the first button for each bit. Press and hold the second button *before* pressing the first button if you want a 1.)

- Read a total of 13 bits this way. Call the number represented by the first 3 bits n; the next 3 bits k; and the final 7 bits a.

- The circuit should activate the motor if

$$a = \binom{n}{k} = \frac{n!}{k!(n-k)!}.$$

  It should light up the red LED otherwise.