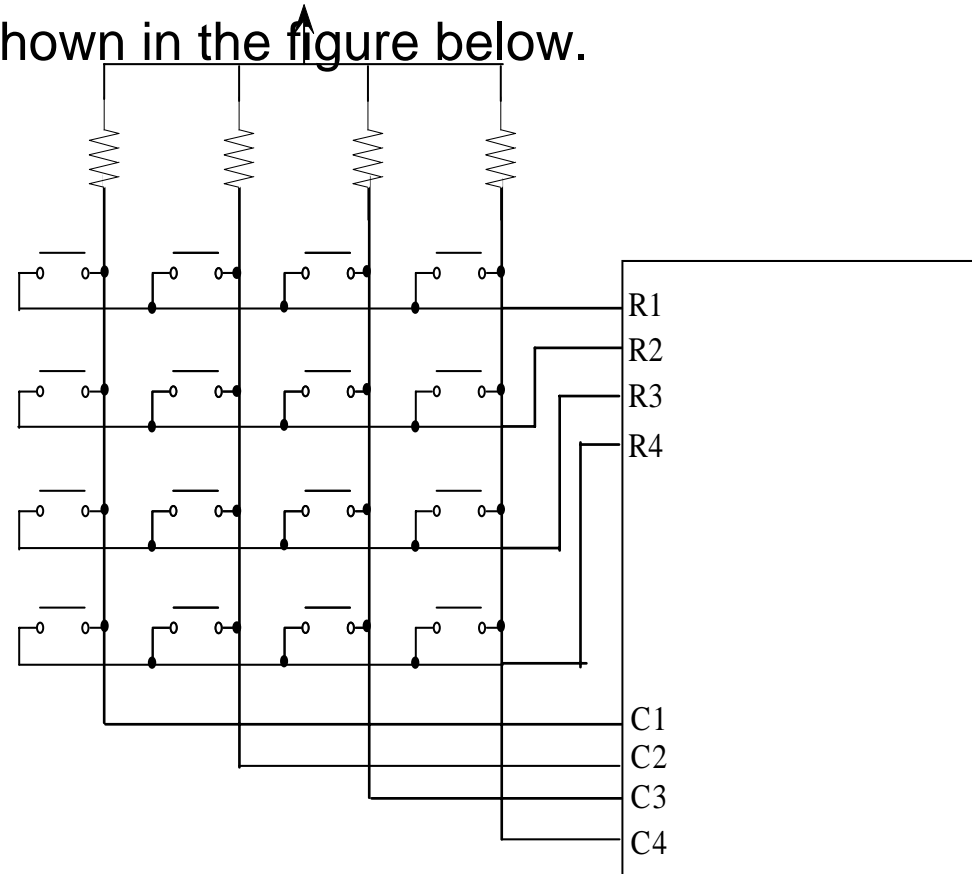


Interfacing a Keypad

- A 16-key keypad is built as shown in the figure below.
 - 16 keys arranged as a 4X4 matrix.
 - Must “activate” each row by placing a 0 on its R output.
 - Then the column output is read.
 - If there is a 0 on one of the column bits, then the button at the column/row intersection has been pressed.
 - Otherwise, try next row.
 - Repeat constantly.



Interfacing a Keypad

- Algorithm:
 - Drive a “0” on a row
 - Read all the columns
 - If any key had been pressed, its column will be “0”, else 1
 - Keep repeating in a loop for each successive row
- Example:
 - Switch 4 is pressed
 - $R1 \leftarrow 0, C1:C4 = 1111$
 - $R2 \leftarrow 0, C1:C4 = 0111$
 - Switch 2 is pressed
 - $R1 \leftarrow 0, C1:C4 = 1101$