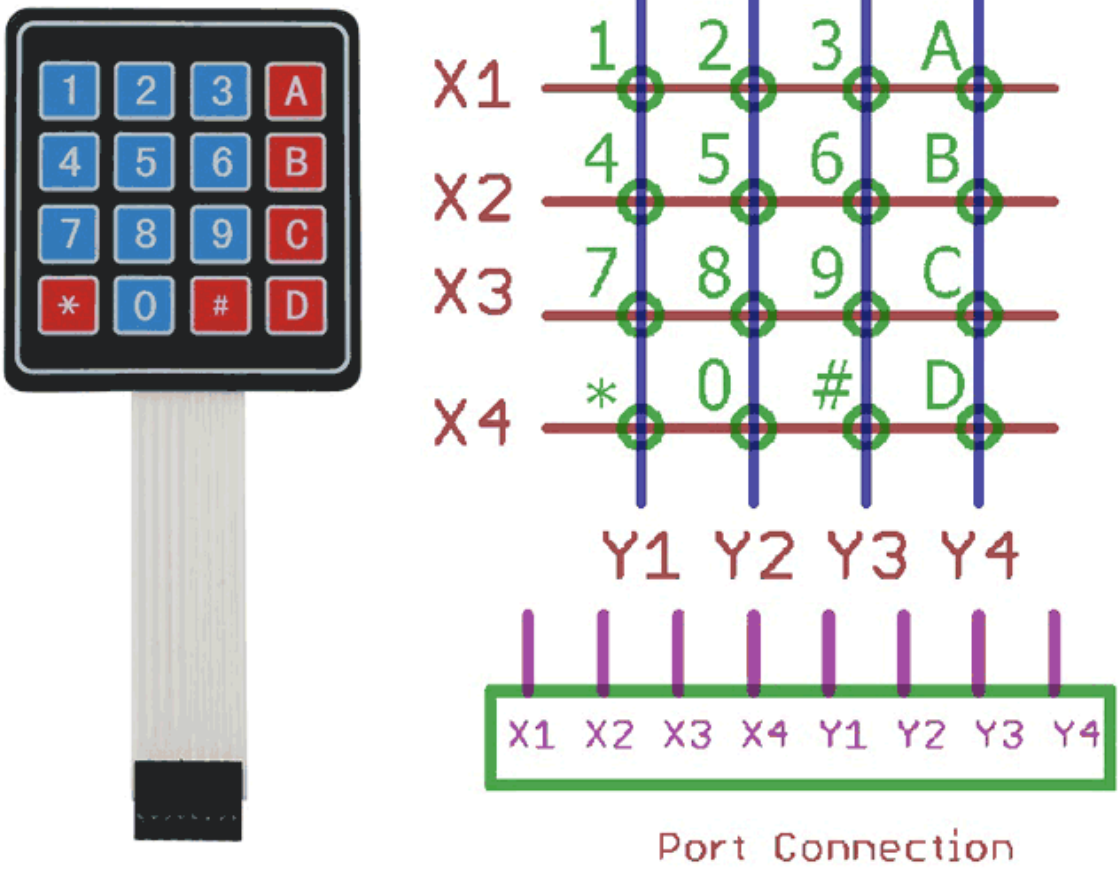
4×4 Keypad

A 4×4 keypad is a matrix keypad with 16 buttons arranged in 4 rows and 4 columns, used as an input device for microcontroller-based systems.

Working Principle:

Each key connects a unique row and column. When a key is pressed, the row and column line are connected, and the microcontroller scans the matrix to identify which key was pressed.



Types:

- 3×4 Keypad (12 keys)
- 4×4 Keypad (16 keys)
- Membrane and mechanical types

Applications:

- Password input systems
- Security locks
- Menu navigation in embedded devices
- Calculator projects

Advantages:

- Compact and efficient
- Simple wiring using matrix scanning
- Easy to integrate with Arduino

Disadvantages:

- Needs debouncing in code
- Not very durable (membrane types)