PIC16F877A –Simplified Features	
CPU	8-bit PIC
Number of Pins	40
Operating Voltage (V)	2 to 5.5 V
Number of I/O pins	33
ADC Module	8ch, 10-bit
Timer Module	8-bit(2), 16-bit(1)
Comparators	2
DAC Module	Nil
Communication Peripherals	UART(1), SPI(1), I2C(1), MSSP(SPI/I2C)
External Oscillator	Up to 20Mhz
Internal Oscillator	Nil
Program Memory Type	Flash
Program Memory (KB)	14KB
CPU Speed (MIPS)	5 MIPS
RAM Bytes	368
Data EEPROM	256 bytes

PIC16F877A

This powerful (200 nanosecond instruction execution) yet easy-to-program (only 35 single word instructions) CMOS FLASH-based 8-bit microcontroller packs Microchip's powerful PIC® architecture into an 40 package and is upwards compatible with the PIC16C5X, PIC12CXXX and PIC16C7X devices. The PIC16F877A features 256 bytes of EEPROM data memory, self programming, an ICD, 2 Comparators, 8 channels of 10-bit Analog-to-Digital (A/D) converter, 2 capture/compare/PWM functions, the synchronous serial port can be configured as either 3-wire Serial Peripheral Interface (SPI™) or the 2-wire Inter-Integrated Circuit (I²C™) bus and a Universal Asynchronous Receiver Transmitter (USART).

How to Select your PIC Microcontroller

Microchip provides a waste verity of Microcontrollers from PIC family. Each MCU has its own advantage and disadvantage. There are many parameters that one has to consider before selecting a MCU for his project. The below points are just suggestions which might help one to select a MCU.

- If you are a beginner who is learning PIC then, selecting a MCU that has good online community support and wide applications will be a good choice. PIC16F877A and PIC18F4520 are two such MCUs
- Consider the operating voltage of your system. If they are 5V then select a 5V MCU some sensors or devices work and communicate on 3.3V in such case a 3.3V MCU can be selected
- If size and price is a limitation then you can choose small 8-pin MCUs like PIC12F508. These are also comparatively cheaper.
- Based on the sensors and actuators used in your project, verify which modules you might need in for MCU. For example is you are reading many Analog voltages then make sure PIC has

enough ADC channels and supportive resolution. The details of all modules are given in the table above.

- If you project involves communication protocols like UART, SPI ,I2C, CAN etc make sure you PIC can support them. Some MCU can support more than one module of the same protocol

PIC16F877A –Detailed Features	
CPU	8-bit PIC
Architecture	8
Program Memory Size (Kbytes)	14
RAM (bytes)	368
EEPROM/HEF	256/HEF
Pin Count	40
Max. CPU Speed (MHz)	20
Peripheral Pin select (PPS)	No
Internal Oscillator	No
No. Of comparators	2
No. Of Operational Amplifier	0
No. Of ADC channels	14
Max ADC Resolution (bits)	10
ADC with Computation	No
Number of DAC Converter	0
Max DAC resolution	0
Internal Voltage Reference	Yes
Zero Cross Detect	No
No. Of 8-bit timers	2
No. Of 16-bit Timers	1
Signal Measurement Timer	0
Hardware Limit Timer	0
No. Of PWM outputs	0
Max PWM resolution	10
Angular Timer	No
Math Accelerator	No
No. Of UART module	1
No. Of SPI Module	1
No. Of I2C module	1
No. Of USB Module	0
Windowed Watchdog Timer (WWDT)	No
CRC/Scan	No
Numerically Controlled Oscillator	0
Cap. Touch Channels	11
Segment LCD	0
Minimum Operating Temperature (*C)	-40
Maximum Operating Temperature	125

(*C)	
Minimum Operating Voltage (V)	2
Maximum Operating Voltage (V)	5.5
High Voltage Capable	No

Applications

- Replacement for Arduino Module
- Ideal for more advanced level A/D applications in automotive, industrial, appliances and consumer applications