

**VARSHINI.V    BU22EECD0100206**

**HANDS ON ACTIVITY EMBEDDED SYSYTEM**

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<b>Feature</b>	<b>8051 Micro-controller</b>	<b>Arduino</b>
<b>Architecture</b>	<b>Harvard</b>	<b>Modified Harvard</b>
<b>Instruction Set</b>	<b>8-bit</b>	<b>8-bit (AVR) or 32-bit (ARM)</b>
<b>Clock Speed</b>	<b>Typically up to 12 MHz</b>	<b>8 MHz (Uno), 16 MHz (Mega), varies with different boards</b>
<b>Memory</b>	<b>ROM, RAM, EEPROM</b>	<b>Flash, SRAM, EEPROM</b>
<b>GPIO Pins</b>	<b>Limited</b>	<b>Abundant, typically 20 or more</b>
<b>Analog Inputs</b>	<b>Usually limited</b>	<b>Typically multiple, 6 or more</b>
<b>Digital I/O</b>	<b>Limited</b>	<b>Abundant</b>
<b>Development Tools</b>	<b>Limited availability</b>	<b>Extensive community support, IDE like Arduino IDE</b>
<b>Programming</b>	<b>Assembly, C</b>	<b>Arduino Sketch (C/C++)</b>
<b>IDE Support</b>	<b>Limited</b>	<b>Arduino IDE, PlatformIO</b>
<b>Debugging</b>	<b>Limited</b>	<b>Limited (Serial debugging, LED blinking)</b>
<b>Cost</b>	<b>Affordable</b>	<b>Affordable</b>

**To summarize:**

The 8051 micro-controller is a classic 8-bit micro-controller known for its simplicity and robustness. It's widely used in embedded systems, particularly in industrial applications.

Arduino, on the other hand, is a popular open-source hardware and software platform that simplifies the process of creating electronics projects. It typically uses AVR or ARM-based micro-controllers and offers a user-friendly environment for programming and prototyping.