**HANDS ON ACTIVITY EMBEDDED SYSTEMS**

**D SAI BHARGAVI [BU21EECE0100454]**

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| **Feature** | **8051 Microcontroller** | **Arduino** |
| Architecture | Harvard | Modified Harvard |
| Instruction set | 8-bit | 8-bit(AVR) OR 32-bit(ARM) |
| Clock speed | Typically up to 12 MHz | 8MHz (Uno),16MHz (Mega),varies with different boards |
| Memory | ROM,RAM,EEPROM | Flash, SRAM, EEPROM |
| GPIO Pins | Limited | Abundant ,typically 20 or more |
| Analog Inputs | Usually Limited | Typically multiple,6 or more |
| Digital I/O | Limited | Abundant |
| Development Tools | Limited availability | Extensive community support ,IDE like Arduino IDE |
| Programming | Assembly ,C | Arduino sketch(c/c++) |
| IDE Support | Limited | Arduino IDE, Platform IO |
| Debugging | Limited | Limited (serial debugging ,LED blinking) |
| Cost | Affordable | Affordable |