

Key Specification Categories

- **Processing Power:**
 1. **Microcontroller (MCU):** 32-bit (ESP32, STM32).
 2. **Microprocessor (MPU):** ARM Cortex-M33, FPU, 375 DMIPS (Dhrystone 2.1).
 3. **Clock Speed:** Measured in MHz (250 MHz for STM32 & 240MHz for ESP32).
- **Memory:**
 1. **Flash Memory:** For storing code (2MB for STM32, 4MB for ESP32).
 2. **RAM (SRAM/PSRAM):** For active data (640KB SRAM on STM32, 520KB SRAM on ESP32).
- **Connectivity:**
 1. **Wireless:** Wi-Fi(In-built), Bluetooth (BLE) (In-built), Zigbee(External), LoRa(External), Cellular (LTE)(External).
 2. **Input/Output (I/O) & Peripherals:** 64 Peripherals from both STM32 & ESP32.
 3. **GPIO Pins:** 36 IO Pins (29 from STM32, 7 from ESP32).
 4. **ADC (Analog-to-Digital Converter):** 8 ADC Pins.
 5. **Communication Protocols(Within IC):** CAN(1), I2C(2), I3C(1), SPI(2), USART(3), PWM.
 6. **Specialized:** Hall effect sensors(External), I2C (audio), Touch Display(External).
- **Power:**
 1. **Operating Voltage:** 3.3V (STM32 & ESP32), 5V for External controlling purpose.
 2. **Input Voltage Range:** (7-12)V, 2A via barrel jack or VCC Pin.

Leaf_board_Pins

PA6	1	D0	A0	17	PA0	PD6	1	RX_2	TX_2	17	PD5
PA7	2	D1	A1	18	PA1	PB7	2	SDA_1	SCL_1	18	PB6
PB0	3	D2	A2	19	PA2	PG14	3	TX_6	RX_6	19	PG9
PB1	4	D3	A3	20	PA3	PD0	4	D11	D10	20	PC12
PA4	5	A4	D4	21	PC0	PE5	5	D15	D14	21	PE6
PC1	6	D5	A5	22	PA5	PE2	6	D17	D16	22	PE4
IO13	7	LED_Y	LED_R	23	PC4	PC11	7	D9	D8	23	PC10
PE11	8	CS_4	CS_2	24	PB9	PC9	8	D7	D6	24	PC8
PF11	9	D21	D20	25	PF12	PD2	9	D13	D12	25	PD1
PF13	10	D19	D18	26	PF14	PF8	10	D23	D22	26	PF10
PE8	11	RX_7	TX_7	27	PE7	PD11	11	D25	D24	27	PF6
PE12	12	SCK_4	SCK_2	28	PB13	PD13	12	D27	D26	28	PD12
PE13	13	MISO_4	MISO_2	29	PB14	PG2	13	D29	D28	29	PG3
PE14	14	MOSI_4	MOSI_2	30	PB15	IO22	14	D31	D30	30	IO21
PB12	15	SDA_2	SCL_2	31	PB10	IO25	15	D33	D32	31	IO23
PG7	16	SCL	SDA	32	PG6	IO27	16	D35	D34	32	IO26

