

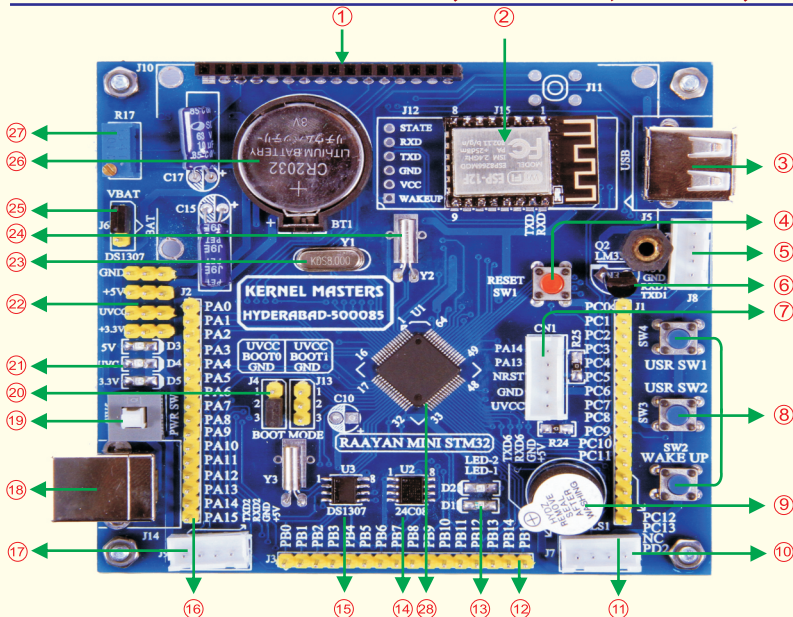
STM32 Based Raayan Mini Development Board

Designed & Developed By



INDIA's one & only
INDUSTRIAL Embedded Systems Training Institute

KERNEL MASTERS



1. 16x2 LCD
2. BLUETOOTH / Wi-Fi
3. USB TYPE - B
4. RESET
5. UART - 1
6. LM 35
7. Debugger

8. SWITCHES
9. BUZZER
10. UART - 6
11. PORT - C
12. PORT - B
13. LED (PWM)
14. EEPROM

15. RTC
16. PORT - A
17. UART - 2
18. USB TYPE - A
19. POWER SW
20. BOOT PINS
21. POWER LED's

22. POWER PIN'S
23. XTAL - 8MHz
24. XTAL - 32.7KHz
25. V-Batt
26. BATTERY
27. LCD Trim POT
28. STM32F401RBT6

To download source code/user manual/schematics visit
www.raayansystems.com/raayanmini/register.php

Raayan Mini



Raayan Bluetooth



Raayan Wi-Fi



STM32 Based Raayan Mini Development Board

STM32F401RBT6 SPECIFICATIONS

Connectivity

3 x I²C,
3 X USART
LIN, Smartcard, IrDA,
modem control,
4x SPI (2X with I²S),
SDIO,
USB 2.0 OTG FS,
APB Bus,
AHB lite BUS matrix

Digital

Cyclic Redundancy
Check (CRC)

I/Os

36/50/81 I/Os,
96-bit unique ID

Arm[®]Cortex[®]-M4 CPU
84 MHZ
FPU
MPU
ETM
NVIC
JTAG/SW debug

ART Accelerator[™]

128-Kbyte
Flash memory

64-Kbyte SRAM

80-byte backup data

16-channel DMA

Voltage sealing

Power Supply
1.2V Internal regulator
POR/PDR/PVD/BOR

Timers

1 x 16-bit motor control
PWM synchronized
AC timer,
5 x 16-bit-timer,
2 x 32-bit timer,
2 x watchdogs
(independent
and window),
Clock control,
PLL

Analog

1 x 12-bit ADC 2.4 MSPS
16 channels / 0.41us,
Temperature sensor,
Xtal oscillators
32 kHz + 4 ~ 26 MHZ,
Internal RC oscillators
32 kHz + 16 MHZ

Parallel Interface

RTC/AWU

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RAAYAN MINI PIN MAPPING

GPIO Pins

PA 8 - USR_LED1
PC 5 - USR_LED2
PA 0 - SW_ENT
PC 8 - SW_UP
PC 9 - SW_DN
PB 12 - BUZZER

LCD Pins

PB 0 - LCD_DATA_4
PB 1 - LCD_DATA_5
PB 2 - LCD_DATA_6
PB 3 - LCD_DATA_7
PB 4 - LCD_RS
PB 5 - LCD_RW
PB 8 - LCD_EN

SPI Pins

PA 4 - SPI1_NSS
PA 5 - SPI1_SCK
PA 6 - SPI1_MISO
PA 7 - SPI1_MOSI

UART Pins

PA 9 - UART1_TX
PA 10 - UART1_RX
PA 2 - UART2_TX
PA 3 - UART2_RX
PC 6 - UART6_TX
PC 7 - UART6_RX

I2C Pins

PB 6 - I2C2_CLK
PB 7 - I2C2_SDA



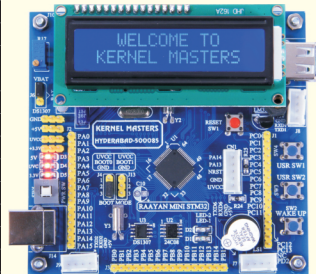
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Educational Boards vs Industrial Boards

PARAMETER	EDUCATIONAL BOARDS (ARDUINO UNO)	INDUSTRIAL BOARDS (RAAYAN MINI)
Suitable for non-Engineering people	✓	✗
In-depth technical learning is possible	✗	✓
Need to learn from the scratch	✗	✓
On Board Peripherals supported	✗	✓
Hardware Debugging possible	✗	✓
Readymade Libraries available with source code	✗	✓
opportunities for career growth	✗	✓
Made in	ITALY	INDIA

Arduino vs Raayan Mini Technical Specifications

Specifications	Arduino Uno	Raayan Mini
Architecture	8 Bit	32 Bit
CPU	ATmega328	ARM Coretx M4
CPU Frequency	16MHZ	84MHZ
Flash	32KB	128KB
RAM	2KB	64KB
GPIO	14	36
UART	1	3
I2C	2	3
SPI	1	4
USB	No	Yes
ADC Pins	6	16
Wi-Fi/Bluetooth	No	Yes
DMA	No	Yes
IDE	Arduino Tool	Keil, STM Cube MX



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Hardware Partner



RAAYAN SYSTEMS