

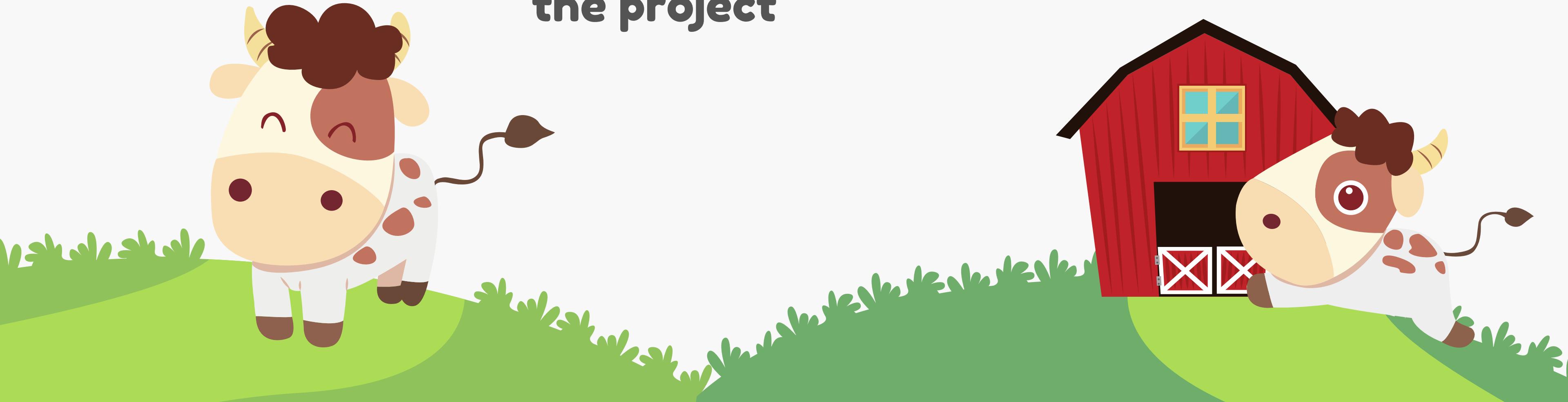
iCowCare

**Cow Health
Monitoring Device**



Summary

- Presentation of market similar products
- IoT boards to adapt for the project



Afimilk



Over 10 million cows in 52 countries around the world are currently managed by Afimilk technology

- Proprietary 3D accelerometer to effectively monitor motion patterns
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- Accessible anytime, anywhere with Afi2Go Pro mobile app
- Robust mechanical design
- provides 95% detection sensitivity in diverse farm conditions
- 3 sensors for better detection
- Electrical design ensures multi-year battery life
- 200-800m range

Nedap



- neck and leg tag.
- Heat Detection/Cow Locating/health monitoring
- Herd Performance Trends
- Real-time information on all devices for multiple users: available on PC, tablet and smartphone
- Real-time, wireless
- 95% sensitivity, 95% specificity
- Expected service life of 8-10 years.
- Real-time and long range data transfer
- Robust materials and construction, engineered for farm environment.

Smartbow



INDUSTRY-LEADING RUMINATION MONITORING:

- provides the most accurate rumination monitoring in the industry, 97% to 99% accuracy
- delivers two types of rumination alerts – an urgent decline in rumination and a long-term decline in rumination.

UNPARALLELED HEAT DETECTION:

- heats can be detected with a reliability of 97%
- generates alarms on smartphones, tablets and desktop computers

Price: 2.500\$ for the installation +69\$ per cow (only for heat detection)



Smaxtec Cowcontrol

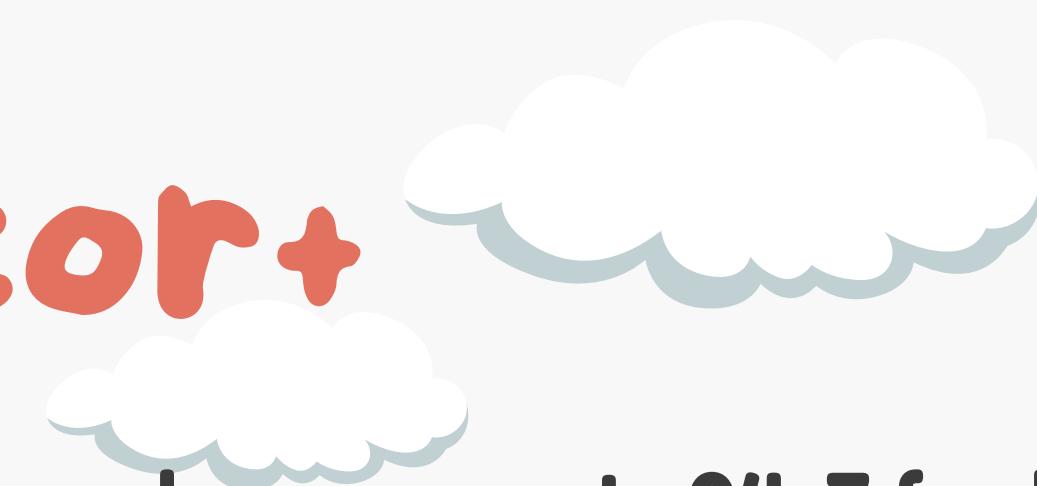


Price
89\$ +2.49\$ per cow per month(data interpretation)

SMAXTEC BOLUSES CONTINUOUSLY COLLECT DATA
The rumen bolus measures direct, insightful values with the highest accuracy inside your cows, in the reticulum.
The bolus remains inside the cow for a lifetime.
It remains in the same position due to its own weight, and is neither regurgitated nor digested.

- **HEAT DETECTION** allowing higher insemination success
- **24/7 MONITORING**
- **EARLY DETECTION**
- optimized for PC and phone (IOS,ANDROID)
- **RECOMMENDED ACTIONS** using AI
- ensuring herd health
- calving detection

MooMonitor+



The MooMonitor+ monitors cow neck movements 24x7 for heat related activity, rumination, resting, feeding, head position and restlessness.

- cloud computing, wearable sensors and big data to make health and reproductive monitoring better
- Detect heats with ease
- monitoring the entire herd from the phone application moonitor+
- real time notifications showing updates on the cows activity and health.



Price
€140 per collar + €4,500 for the base station + €5 per cow per year charge for the cloud monitoring system.

Moonyst Cattle Monitoring



ITEM	PRICE
Smart Rumen Bolus // temp + activity //	99 € / device*
Smart Rumen Bolus pH // temp + activity + pH //	349 € / device*
Gateway // Including SIM Card with unlimited usage and power cable //	1,999 € <small>Monthly rental available</small>
Mooncloud // Cloud based software //	Free of Charge <small>No Software or Hardware Maintenance Fees</small>

- **Plug & Play installation, optimized for phone, tablet and PC**
- **Real-time access via cloud computing with 24/7 rumen monitoring**
- **Boluses are maintenance-free, orally administered sensors with unique IDs and 6+ years battery life**
- **Captures animal activity, rumen temperature, and movement**
- **Mooncloud software application provides dedicated location for livestock information accessible via phone, tablet or PC**
- **Supports calving, facilitates insemination, and prevents diseases**
- **Improves success rates with insemination and provides real-time alerts of calving events (days/hours in advance)**
- **Enables timely and targeted medication treatments with advanced warning of health concerns**
- **Precise monitoring of drinking behavior for feeds into animal health monitoring**
- **Artificial intelligence used for individual animal heats identification and prediction**
- **Enhances expert herdsmanship with technology**
- **Tailored status periods within Mooncloud for each cow's specific status.**
- **size: 100 mm x 32 mm // weight: cca. 200g**

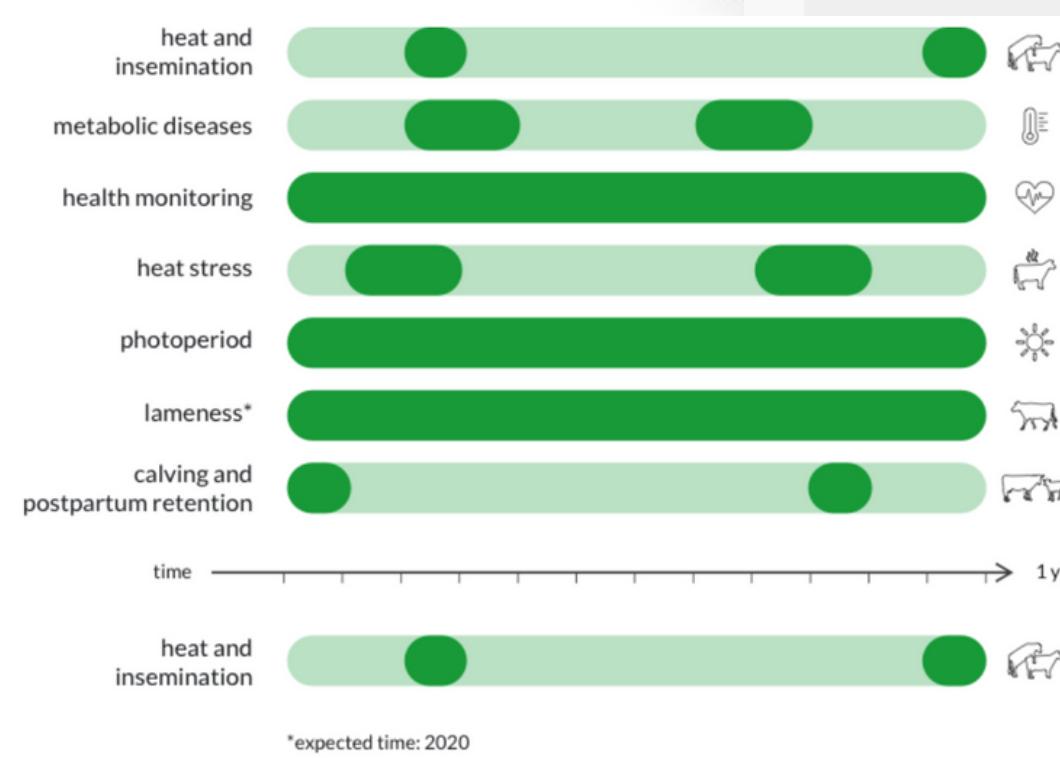
e-Stado



Comparison of monitoring systems functions for dairy cows

e-stado® works for you all year.

Activity meters work for you 2-3 months per year.



Sensors:

- Ear biosensors
- Environment sensor
- Tail biosensor
- Radio transmitters in the cowshed and pasture
- Cowshed monitor

Features:

- Health
 - Measurement of inactivity, detection of threat
 - Measurement of ear temperature, detection of threat
- Reproduction
 - detection of heat
 - estimation of optimal insemination window
- Calving
 - estimation of incoming calving time
 - postpartum retention
- Feeding
 - monitoring of rumination time
 - monitoring of feed intake time
- Photoperiod: Measurement of individual photoperiod cycle
- Heat stress
 - detection of individual heat stress
 - measurement of barn humidity
 - measurement of barn temperature
 - calculation of barn THI index
- Lameness.: detection of early stages of lame

CowManager



- Real-time monitoring of cow behavior and health using wireless router located in the farm
- Wireless ear tags with long-lasting batteries
- Cloud-based software with a user-friendly interface
- Customizable alerts
- Integration with other farm management systems
- Sustainability-focused approach.
- Real time Monitoring
- Detects fertility, illness, activity, eating behaviour

Ayushman Cowfit



- Uses IoT technology to monitor cattle health
- Early detection of health issues
- Collar with sensors on the cow's neck
- Cloud-based analysis with real-time insights and alerts
- User-friendly mobile app and web portal
- Actionable recommendations for improving cattle health
- Cost-effective and scalable
- Reduces need for frequent check-ups and saves time and money.

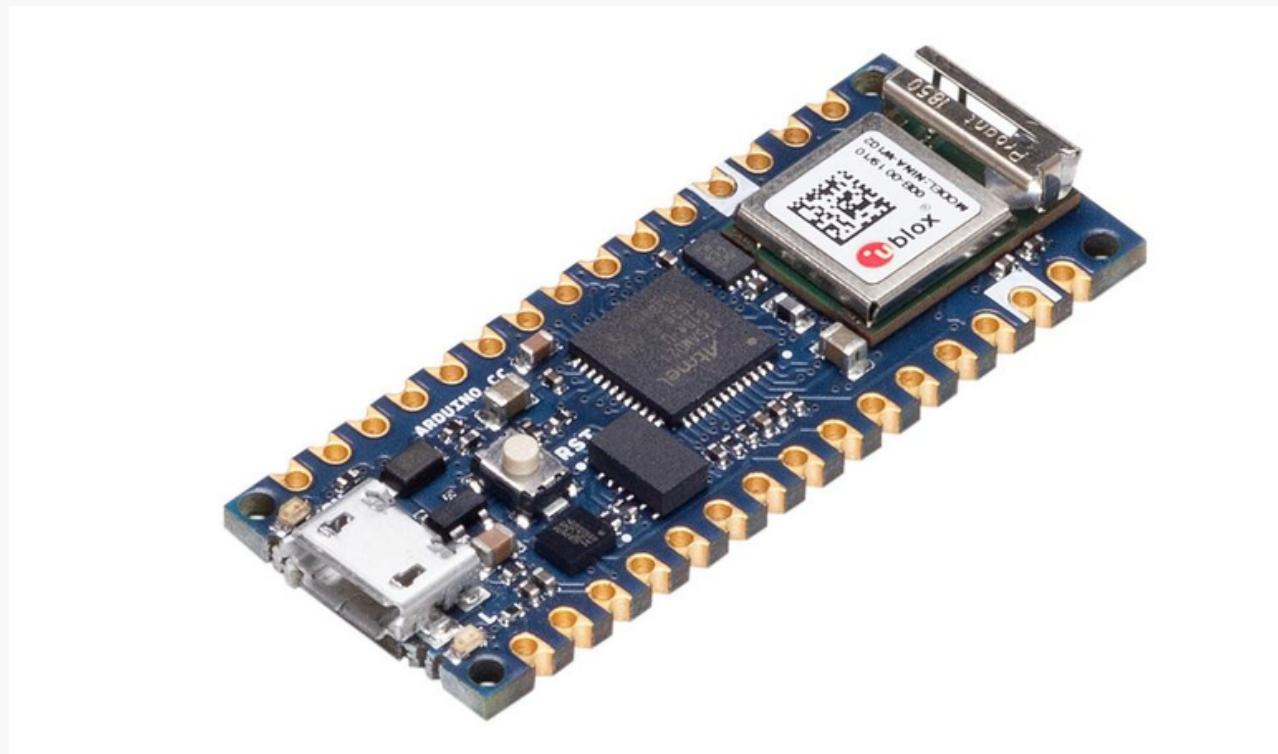
Price
€90 per collar

IOT Dev Boards

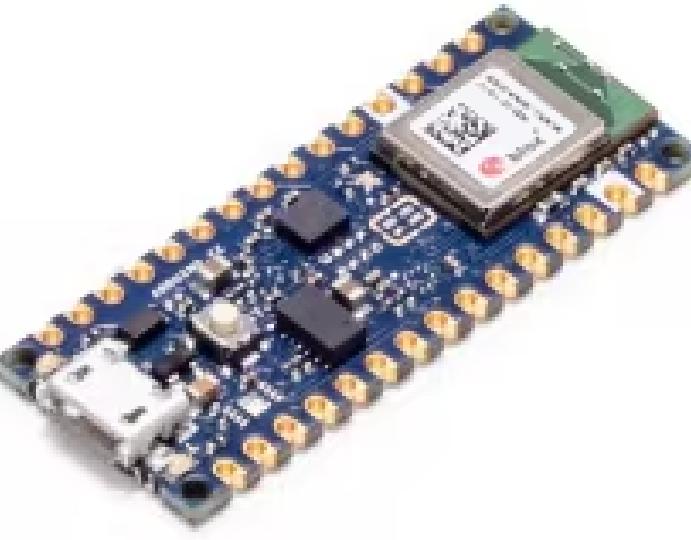
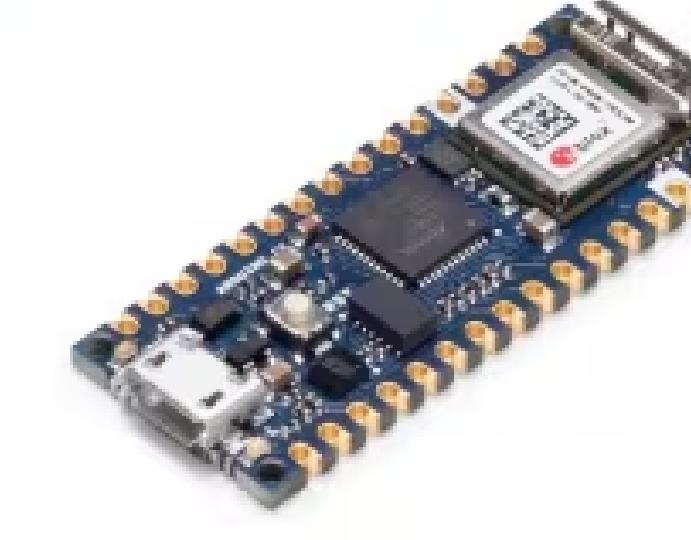


Arduino Nano 33 IoT

WiFi-enabled board that is based on the SAMD21 Cortex-M0+ 32bit low power ARM MCU and the NINA W102 ESP32-based WiFi module. It has a range of features including 6 analog inputs, 14 digital I/O pins, and 256KB of flash memory. The board also supports IoT cloud platforms such as AWS IoT, Google Cloud IoT, and Azure IoT. It includes an IMU sensor

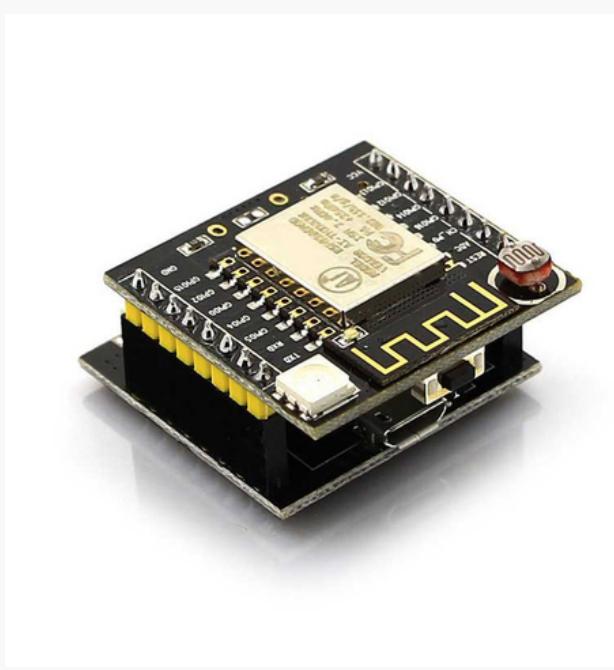


Prix
20,80 €

Parameters	Arduino Nano 33 BLE	Arduino Nano 33 BLE sense	Arduino Nano 33 IoT
View			
COST	22.20 USD	31 USD	18.40 USD
Processor	nRF52840	nRF52840	SAMD21
Processor Description	32-bit ARM Cortex-M4F	32-bit ARM Cortex-M4F	Cortex®-M0+ 32bit low power ARM MCU
Clock Speed	64MHz	64MHz	48MHz
CPU Flash Memory	1 MB	1 MB	256 KB
SRAM	256 KB	256 KB	32 KB
EEPROM	No EEPROM	No EEPROM	No EEPROM
Wireless Protocols	Bluetooth 5	Bluetooth 5	Wi-Fi 802.11b/g/n Bluetooth v4.2
Inbuilt Sensors	IMU(LSM9DS1)	IMU(LSM9DS1) Temperature Humidity Pressure Microphone Gesture Light Proximity	IMU (LSM6DS3)
Operating Voltage	3.3 v	3.3 v	3.3V
DC Current input output pin	15 mA	15 mA	7 mA
UART	1	1	1
SPI	1	1	1
I2C	1	1	1
PWM Channels	All Digital Pins	All Digital Pins	11
Analog Input Pin	8	8	8
Analog Output Pins	Only through PWM (no DAC)	Only through PWM (no DAC)	1 (DAC 10 bit)
Digital I/O Pins	14	14	14

ESP8266 ESP12F

- **ESP8266 ESP12F** is a low-cost, Wi-Fi enabled microcontroller.
- It is a member of the **ESP8266** family, which consists of various microcontrollers with different pinouts and features.
- The **ESP12F** variant has **4MB** of flash memory, which can be used to store code and data.
- It has an **80MHz Tensilica L106** microcontroller unit (MCU) that can be programmed using the **Arduino IDE** or **Lua** scripting language.
- The **ESP12F** module also includes a Wi-Fi chip that supports **802.11b/g/n** wireless networking with **WPA/WPA2** and **WEP** encryption.
- It has a small form factor with **22 pins**, including **GPIO**, **I2C**, **UART**, and **SPI** interfaces.
- The **ESP12F** can be powered using a **3.3V DC** power supply, and it consumes very low power, making it ideal for battery-powered applications.
- It can be used for a variety of IoT projects, including home automation, weather monitoring, and remote control of devices.



Prix
22,5 TND

NodeMCU ESP8266-12E CH340 V3

- NodeMCU ESP8266-12E CH340 V3 is a microcontroller board based on the ESP8266-12E module.
- It includes a CH340G USB-to-Serial chip for programming and debugging.
- The board has 11 digital input/output pins, one analog input pin, and a maximum operating voltage of 3.3V.
- It has built-in Wi-Fi connectivity, which makes it easy to connect to the internet and communicate with other devices.
- The board is compatible with the Arduino IDE and can be programmed using the Lua scripting language.
- It also supports OTA (Over-The-Air) programming, which allows you to update the firmware over Wi-Fi.
- The NodeMCU ESP8266-12E CH340 V3 is a low-cost and versatile microcontroller board that is ideal for Internet of Things (IoT) projects and home automation.



**Prix
25 TND**

WeMOS D1 Mini V2

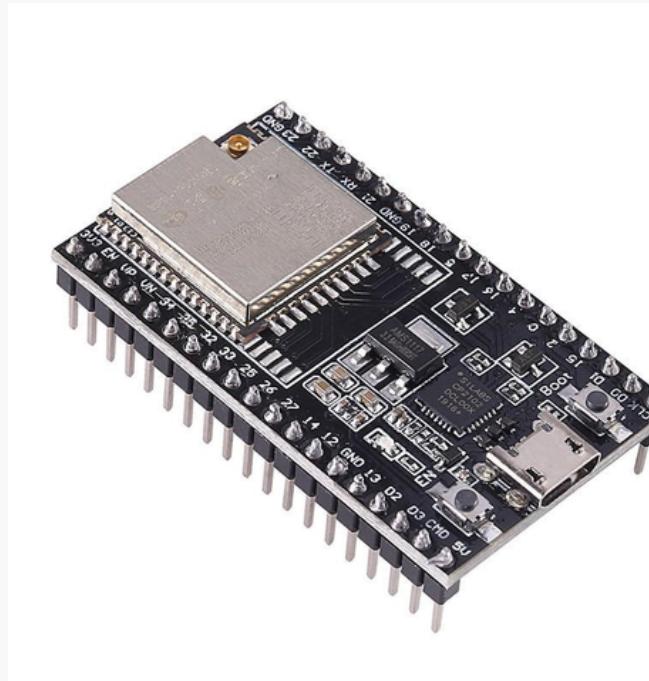
- WeMOS D1 Mini V2 is a compact development board based on the ESP8266 ESP12F microcontroller.
- It is designed to fit into a breadboard, making it easy to prototype and experiment with.
- The board features 4MB of flash memory, which can be programmed with the NodeMCU firmware, allowing for easy development with the Lua scripting language.
- It has a built-in USB-to-serial converter, making it easy to program and debug.
- The board includes an ESP8266 Wi-Fi chip, which supports 802.11 b/g/n wireless networking with WPA/WPA2 and WEP encryption.
- It has 11 digital input/output pins, including one analog input pin.
- The board can be powered via USB or an external 5V power supply, and it has a built-in voltage regulator that can provide a stable 3.3V supply to other components.
- It can be used for a wide range of IoT projects, including home automation, sensor monitoring, and remote control of devices.



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23 TND

ESP32-WROOM-32U

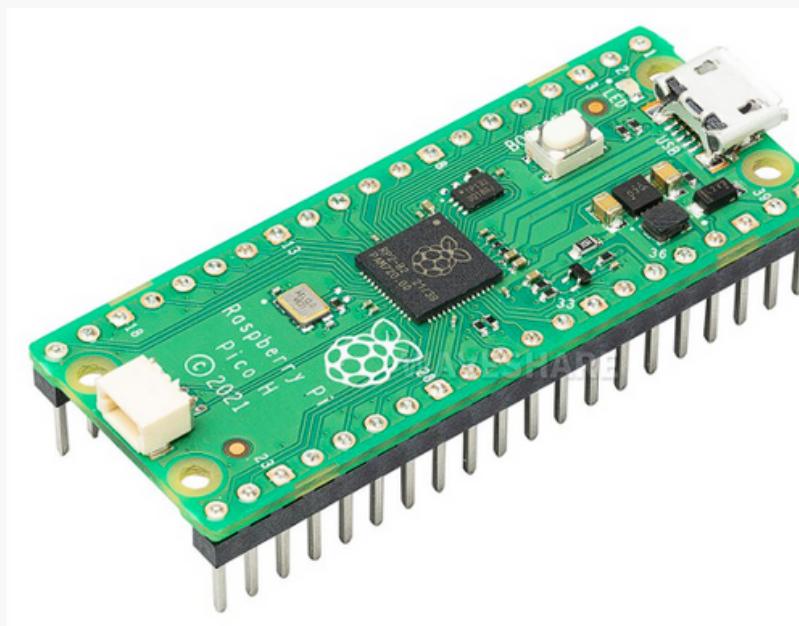
- The **ESP32-WROOM-32U** is a Wi-Fi and Bluetooth enabled microcontroller module.
- It is based on the **ESP32** dual-core processor with 240 MHz clock speed and 520 KB SRAM.
- The module has a built-in 4 MB flash memory for program and data storage.
- It supports various interfaces such as **UART, SPI, I2C, I2S, PWM, ADC, DAC**, and more.
- The module is designed for low-power applications and supports sleep modes to reduce power consumption.
- It has a built-in security mechanism to prevent unauthorized access and ensure secure communication.
- The module is compact in size and can be easily integrated into various IoT applications.
- It supports various development environments and programming languages, including **Arduino IDE, MicroPython**, and more.
- The module is cost-effective and suitable for both hobbyists and professional developers.



Prix
42 TND

Raspberry Pi Pico H

- The **ESP32-WROOM-32U** is a Wi-Fi and Bluetooth enabled microcontroller module.
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- The module has a built-in 4 MB flash memory for program and data storage.
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- It supports various development environments and programming languages, including **Arduino IDE, MicroPython**, and more.
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Prix
39 TND

Thank You!

