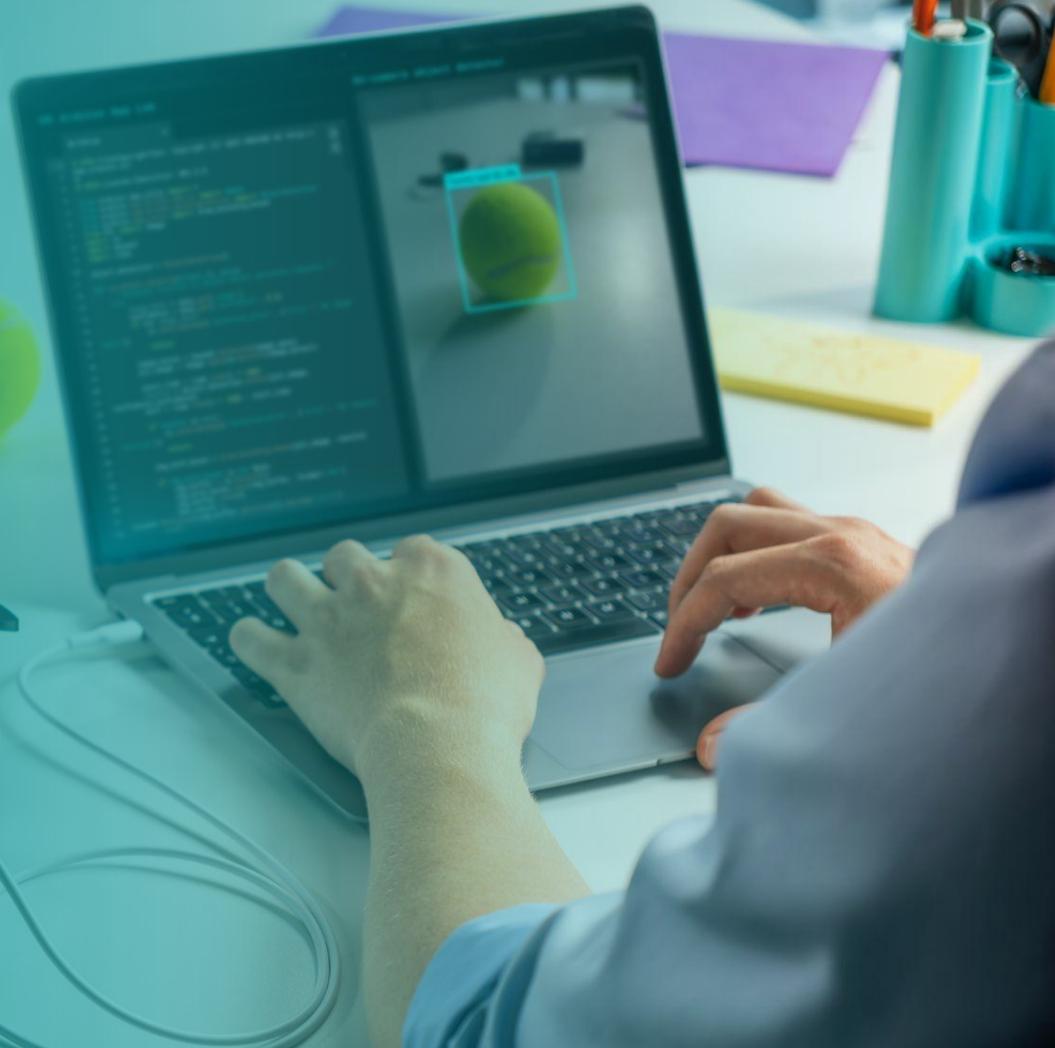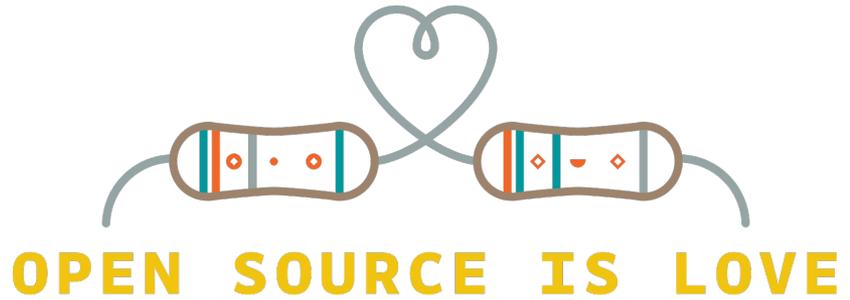# Arduino
Open Source
Report 2025

Another incredible year has passed in the Arduino world, which means it's time to publish our annual retrospective on the Arduino open-source ecosystem.

In this report you'll learn about the activities of the **Arduino team** from the past year, as well as the contributions from our passionate and vibrant **community**.

This report is a snapshot of the ecosystem as of December 31st, 2025

OPEN SOURCE IS LOVE

Introduction

Another incredible year

The Arduino name designates a company, an open source project, a community. We're **tens of millions of people** sharing a passion for embedded electronics. But we're also thousands of **companies** manufacturing boards, shields and accessories, and developing software for them. We're educators, students, hackers, consultants, engineers, designers, and entrepreneurs. In these 20 years we have all been collaborating every day to share knowledge and solutions, building an incredibly wealthy pool of resources around which an **entire industry** has grown.

As a company, Arduino believes in the values that make this community great: **openness**, **transparency**, **collaboration**, and **sharing**.
This annual report documents our **efforts and investments** to support the growth of the ecosystem. As you will see in the document, **2025** has been another incredible year in terms of open source development. To comment on this report, join us in the Arduino Forum.

# Activities carried out by the Arduino team

In this section we'll go through the main projects delivered directly by the Arduino team.

Open-Source Hardware boards

During 2025 we released **SIX new open-source hardware boards**:

- ➜ **Arduino® UNO™ Q**
- ➜ **Arduino® Nano Matter**
- ➜ **Modulino® Vibro**
- ➜ **Modulino® Latch Relay**
- ➜ **Modulino® Light**
- ➜ **Modulino® Joystick**

For each of them, the full schematics and CAD files are available on the docs.arduino.cc website.
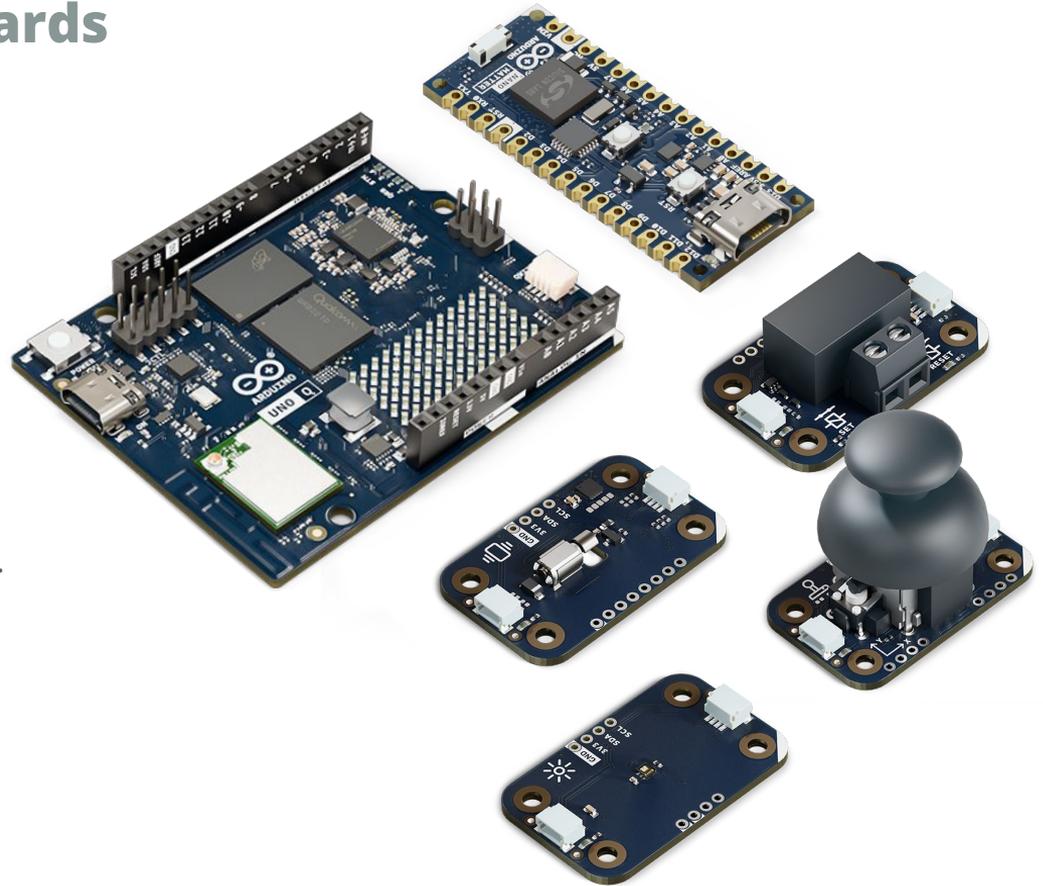
👆 How to get involved:

Remix these boards, innovate and share your builds!

Arduino cores based on Zephyr ®

In 2023, we joined the **Zephyr® Project as Silver members**.
Zephyr is an open source project of the Linux Foundation that builds a secure, connected and flexible RTOS for embedded devices. Supporting Zephyr is important for us because it helps keeping embedded development open, collaborative and accessible, while increasing security and robustness.

We are **making great progress on our goal to transition from Arduino cores based on Mbed OS to new Arduino cores based on Zephyr**. In particular, in 2025:

- – we released the **first stable Arduino core on Zephyr for UNO Q**. This is a big milestone, as it is the first board that launched with a Zephyr-based core
- – we released **5 beta versions** of Arduino core on Zephyr and we continue to make progress toward a Stable release
- – we worked hard to contribute to Zephyr with **74 patches** submitted and merged to the upstream codebase, many of them for the new dynamic loader llext.
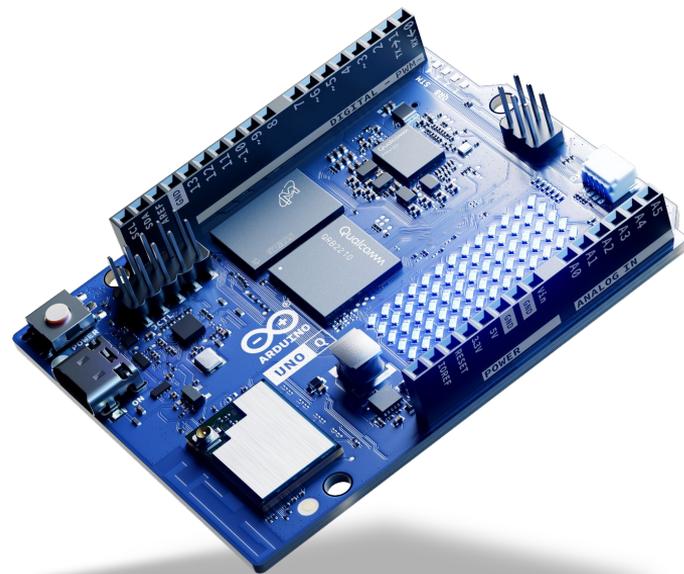
Zephyr®

Official cores

During 2025 we shipped **13 new releases** of the [official cores](#) for RP2040, STM32, nRF52, and Renesas, including 5 releases dedicated to the new Arduino core based on Zephyr, bringing bug fixes, new features and support for more boards.
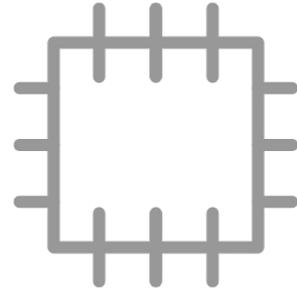
How to get involved:

Send us bug reports and feature requests via GitHub Issues. Help resolve existing issues by submitting pull requests.

Data source: GitHub

Arduino Debian Linux for UNO Q

- In 2025, Arduino released the UNO Q, and with it, a new **Debian-based Linux distro, developed in collaboration with the Qualcomm Open Source Tech Team**
- Our strategy is to continue to leverage upstream Linux and contribute back to it

- 5 full image releases since Oct 2025

How to get involved:

Join the development and help testing bugs, fixing them and developing new features!

Official libraries

We released **11 new official libraries**:

- https://github.com/arduino-libraries/Arduino_APDS9999
- https://github.com/arduino-libraries/Arduino_CapacitiveTouch
- https://github.com/arduino-libraries/Arduino_CloudUtils
- https://github.com/arduino-libraries/Arduino_KVStore
- https://github.com/arduino-libraries/Arduino_LTR381RGB
- https://github.com/arduino-libraries/Arduino_Nesso_N1
- https://github.com/arduino-libraries/Arduino_NetworkConfigurator
- https://github.com/arduino-libraries/Arduino_RPCLite
- https://github.com/arduino-libraries/Arduino_RouterBridge
- https://github.com/arduino-libraries/Arduino_USBHIDHost
- https://github.com/arduino-libraries/Arduino_UniqueHWId
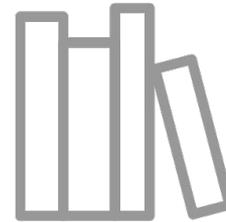
Also, during 2025 we shipped **93 new releases** of the official libraries with bug fixes and new features.

How to get involved:

Please help us fix bugs, review pull requests and improve the examples shipped with libraries to better document their functionality!

Data source: Arduino Library index, MicroPython Package Index

Arduino App Lab for UNO Q

In 2025, we introduced **Arduino App Lab, a new open-source environment designed to create apps on the Arduino UNO Q**. It allows anyone to build applications that leverage both the on-board microcontroller and Linux-based microprocessor.
App Lab also **introduced the Brick system**, featuring modular software components that simplify advanced development, such as AI model integration.

Since its release, we have been gathering community feedback to improve features and reliability, while also creating an ever-growing **library of Bricks and Examples** to keep lowering the barriers to complex technologies.
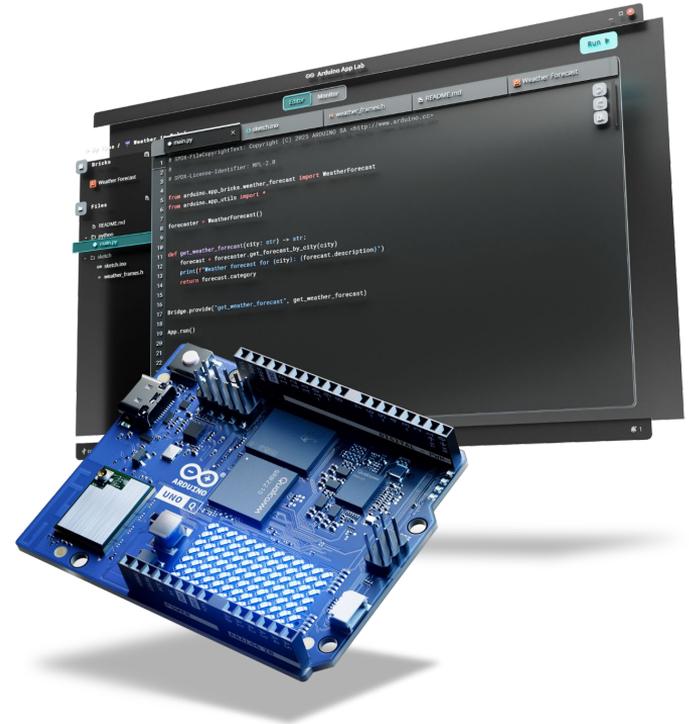
How to get involved:

Test the Arduino App Lab to spot issues and bugs.
Join the development or contribute to the Bricks and Examples library and help with testing, fixing bugs or developing new features!

Data source: GitHub

NEW
Arduino App CLI for UNO Q

In addition to App Lab, in 2025 we released the new **Arduino App CLI, a command-line open-source tool that powers the backend of the App Lab.**

App CLI allows for the management of apps, system updates, board configurations and Bricks directly from the command line, via serial port or network (SSH).

Since its first public availability in late 2025, we've already released 10 new versions, focusing on stability, cross-platform support, performance optimizations, and integration capabilities.

How to get involved:

Join the development and help with testing bugs, fixing them, and developing new features!

```
→ cli arduino-cli sketch new Blink
Sketch created in: /Users/sebastianhunkeler/Repositories/sbhklr/cli/Blink
→ cli echo "void setup() {
    pinMode(LED_BUILTIN, OUTPUT);
}

void loop() {
    digitalWrite(LED_BUILTIN, HIGH);
    delay(1000);
    digitalWrite(LED_BUILTIN, LOW);
    delay(1000);
}" > Blink/Blink.ino
→ cli arduino-cli board listall mkr
Board Name          FQBN
Arduino MKR FOX 1200    arduino:samd:mkrfox1200
Arduino MKR GSM 1400    arduino:samd:mkrgsm1400
Arduino MKR NB 1500     arduino:samd:mkrnb1500
Arduino MKR Vidor 4000  arduino:samd:mkrvidor4000
Arduino MKR WAN 1300    arduino:samd:mkrwan1300
Arduino MKR WAN 1310    arduino:samd:mkrwan1310
Arduino MKR WiFi 1010   arduino:samd:mkrwifi1010
Arduino MKR1000        arduino:samd:mkr1000
Arduino MKRZERO        arduino:samd:mkrzero

→ cli arduino-cli compile --fqbn arduino:samd:mkr1000 Blink/Blink.ino
Sketch uses 11048 bytes (4%) of program storage space. Maximum is 262144 byt
→ cli
```

sebastianhunkeler@sh-mbp-arduino: ~/Repositories/sb

Data source: GitHub

Arduino IDE 2

In 2022, we released the Arduino IDE 2, marking a big milestone in Arduino history. Since then, we never stopped working in it: the Arduino development team continues with development and maintenance, interacting with the community to make sure the IDE is robust, maintained, and easy to use.

In 2025, 3 new versions were released with significant dependency updates, bug fixes, and security updates.

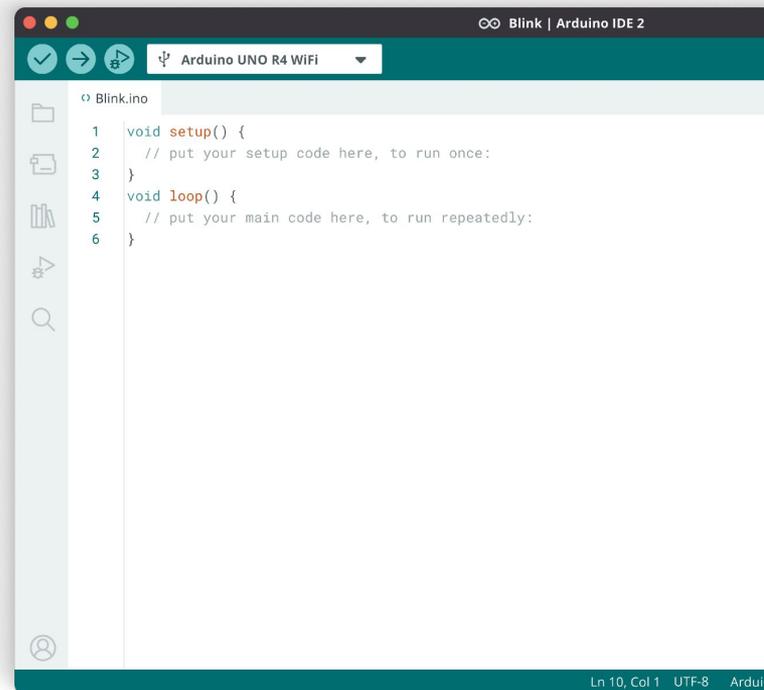**How to get involved:**

Test Arduino IDE to spot issues and bugs.
Contribute the translation in your language.
Join the development and help testing bugs, fixing them and developing new features!

Data source: GitHub

Arduino CLI

The open-source Arduino CLI command line tool provides access to all the features of the IDE, including compilation, upload to boards, library management and more. This tool allows you to manage your Arduino sketches without leaving your editor of choice, as well as integrate it in your scripts and custom applications.

We have been working on this tool on a daily basis to add new features, and during this year we released 10 new versions! Building on the 1.0.0 "major" version of 2024, we released multiple new "minor" versions, up to 1.4.0.

How to get involved:

Contribute the translation in your language.
Jump into the development and help testing bugs, fixing them and developing new features!


```
sebastianhunkeler@sh-mbp-arduino: ~/Repositories/sb
→ cli arduino-cli sketch new Blink
Sketch created in: /Users/sebastianhunkeler/Repositories/sbhklr/cli/Blink
→ cli echo "void setup() {
    pinMode(LED_BUILTIN, OUTPUT);
}

void loop() {
    digitalWrite(LED_BUILTIN, HIGH);
    delay(1000);
    digitalWrite(LED_BUILTIN, LOW);
    delay(1000);
}" > Blink/Blink.ino
→ cli arduino-cli board listall mkr
Board Name          FQBN
Arduino MKR FOX 1200    arduino:samd:mkrfox1200
Arduino MKR GSM 1400    arduino:samd:mkrgsm1400
Arduino MKR NB 1500     arduino:samd:mkrnb1500
Arduino MKR Vidor 4000  arduino:samd:mkrvidor4000
Arduino MKR WAN 1300    arduino:samd:mkrwan1300
Arduino MKR WAN 1310    arduino:samd:mkrwan1310
Arduino MKR WiFi 1010   arduino:samd:mkrwifi1010
Arduino MKR1000         arduino:samd:mkr1000
Arduino MKRZERO         arduino:samd:mkrzero

→ cli arduino-cli compile --fqbn arduino:samd:mkr1000 Blink/Blink.ino
Sketch uses 11048 bytes (4%) of program storage space. Maximum is 262144 byt
→ cli
```

Data source: GitHub

Arduino Lab for MicroPython

In 2022 a new IDE for MicroPython was released as an experimental project. Since then, we have seen it adopted widely, especially in classrooms. We received a lot of positive feedback from the community, so we have been improving it to add new features and improve reliability.

In 2025 we have released 2 new versions of the Arduino Lab for MicroPython, with an updated UX/UI, including the new Package Installer.

In addition, we released an update and bug-fixes to the Arduino Runtime for Micropython and Arduino Tools for MicroPython app framework and utilities.
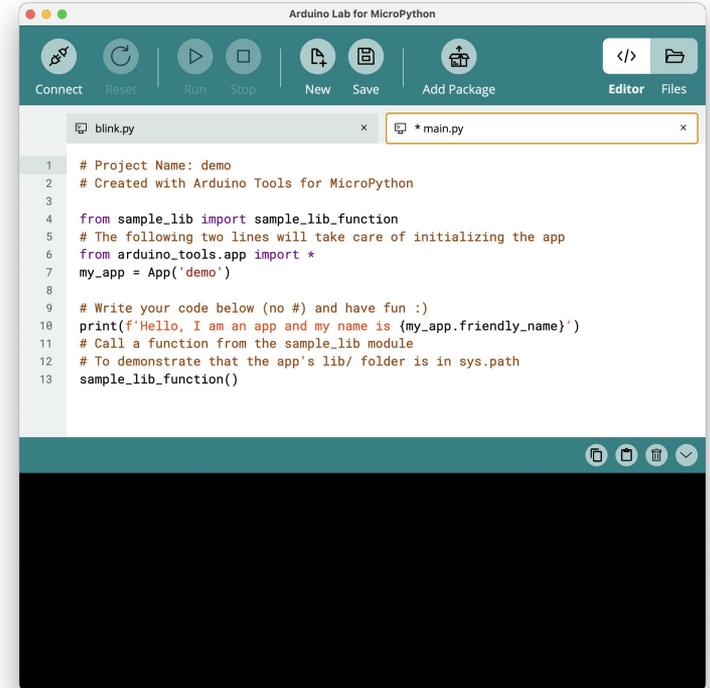

How to get involved:

Test the application in real-world situations and report feedback.
Join the development and roadmap discussion on GitHub.

15

Data source: GitHub

Arduino Cloud CLI & Create Agent

The open-source **Arduino Cloud CLI** supports, among other things, mass device provisioning and **Over-the-Air updates**. This allows anyone to **upload sketches on remote devices** without leaving the command line.
During 2025, we have been improving this tool and released 5 new versions.

The **Arduino Cloud Agent** is the core of the Arduino Cloud services and is fully open source. During 2025, we released 1 new version.

How to get involved:

Help testing bugs, fixing them and developing new features!

```
sebastianhunkeler@sh-mbp-arduino: ~/Repositories/sbh

→ cli arduino-cli sketch new Blink
Sketch created in: /Users/sebastianhunkeler/Repositories/sbhklr/cli/Blink
→ cli echo "void setup() {
    pinMode(LED_BUILTIN, OUTPUT);
}

void loop() {
    digitalWrite(LED_BUILTIN, HIGH);
    delay(1000);
    digitalWrite(LED_BUILTIN, LOW);
    delay(1000);
}" > Blink/Blink.ino
→ cli arduino-cli board listall mkr
Board Name            FQBN
Arduino MKR FOX 1200   arduino:samd:mkrfox1200
Arduino MKR GSM 1400   arduino:samd:mkrgsm1400
Arduino MKR NB 1500    arduino:samd:mkrnb1500
Arduino MKR Vidor 4000 arduino:samd:mkrvidor4000
Arduino MKR WAN 1300   arduino:samd:mkrwan1300
Arduino MKR WAN 1310   arduino:samd:mkrwan1310
Arduino MKR WiFi 1010  arduino:samd:mkrwifi1010
Arduino MKR1000        arduino:samd:mkr1000
Arduino MKRZERO        arduino:samd:mkrzero

→ cli arduino-cli compile --fqbn arduino:samd:mkr1000 Blink/Blink.ino
Sketch uses 11048 bytes (4%) of program storage space. Maximum is 262144 byt
→ cli
```

Data source: GitHub

Security

Last but not least, a lot of work has been carried out by our dedicated security team that works full-time to inspect code, handle reports, and secure the infrastructure, including the way assets are developed, compiled and distributed.

During 2025, we have been improving the security of our open-source code with proactive audits, as well as prompt reaction to reports we received directly and in the form of CVEs.

Security issues found in our products are reported in public Security Bulletins shared on our Security page.

How to get involved:

Help us inspect repositories to find vulnerabilities, and get in touch with our security team according to the security policy.

Contributions to external projects

Open source is about sharing and giving back, so we care a lot about contributing to upstream projects. During 2025, we have been dedicating significant development time to contribute to the following excellent projects:

- Zephyr
- MicroPython
- Linux
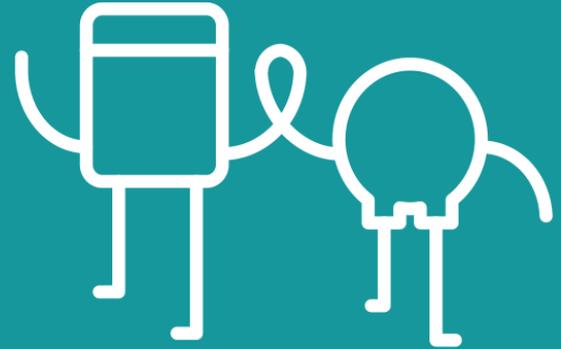
Highlights from the community

Now let's focus on contributions from the community in 2025.

1,218

new libraries in 2025

Community contribution matters

2025 marked the **ten year anniversary** of Arduino's creation of the **Library Manager** system (released in Arduino IDE 1.6.2).

1,218 new contributed libraries have been added to the Library Manager, bringing the total number to **8,754**. The Arduino library ecosystem continues to grow.

Data source: Arduino Library Index

Libraries are a vibrant big thing

This number represents the incredibly active and continuous efforts of the Arduino library developers.

The Arduino community continues to amaze the world with its contributions.

6602

New versions of libraries in 2025

Data source: Arduino Library Index

You'll never walk alone

420 new open-source projects were added to [Arduino Project Hub](#) during the year (+14% compared to 2024!).

Arduino Project Hub now contains **6000+** projects to gain inspiration from!

Note that we perform quality review and moderation to avoid duplicates, so this number does not include all submissions, representing solely the projects that were approved and published by the Project Hub maintainers.

Many cores contributed to

The community continues to expand and enhance support for a large and diverse ecosystem of hardware through the creation and maintenance of Arduino boards platforms. **215** new versions of community platforms were released in 2025.

Note that since there's no official platform registry, we don't have comprehensive data on the many community platforms. This number represents the platforms and releases we are aware of.

Top contributors of new libraries

Author	Number of libraries added in 2025
Rob Tillaart	50
Jim Lee	28
M5Stack	25
7Semi	21
Adafruit	21
AlexGyver	14
DFRobot	14
honey the codewitch	14
Best Modules Corp.	13
stm32duino	13

Author	Number of libraries added in 2025
Arduino	11
SparkFun Electronics	11
Sensirion AG	10
TANAKA Masayuki	10
Digital Codesign	9
Sitron Labs	9
Can Ünüvar	8
Liontron Systems	8
Saurav Sajeev	8
DIYables	7

Author	Number of libraries added in 2025
PervasiveDisplays	7
dac1e	6
Dawid Kurzyniec	6
Sfera Labs	6
Artron Shop Co., Ltd.	5
Enrique Fernandez for ChipNorm by FMH	5
Johan Böhlin	5
Milad Nikpendar	5
Stefan Staub	5

Data source: Arduino Library Index

Most active library maintainers

Maintainer	Number of releases in 2025
Rob Tillaart	399
AlexGyver	212
Adafruit Industries	191
Mathieu Carbou	154
M5Stack	121
Suwatchai K.	121
Dawid Kurzyniec	104
Arduino	93
honey the codewitch	86

Maintainer	Number of releases in 2025
SparkFun Electronics	81
Johan Böhlin	76
Larry Bank	55
Dmitriy Efimov	54
Włodzimierz Ciesielski	54
Jim Lee	53
STM32duino	52
Sensirion AG	48

Maintainer	Number of releases in 2025
EnviroDIY	47
Best Modules Corp.	42
Wolfgang Ewald	42
ESP32 Asynchronous Networking	40
Alteriom	39
TANAKA Masayuki	37
dac1e	35
Picovoice	34

Data source: Arduino Library Index

(This ranking is based on the frequency of releases, which does not necessarily reflect the complexity of each release.)

More contributions

The Arduino community spreads far and wide, and given its size, it is nearly impossible to track all of the contributions that are shared daily in **unofficial community platforms** and **independent websites**. This includes **software contributions** such as code examples and full open-source sketches, but also **knowledge contributions** such as documentation and tutorials, and last but not least **hardware design contributions** such as derivative or complementary products (shields, accessories, derived boards).

Tracking and representing such a variety in a future edition of this report, both in quantitative and in qualitative form, would be a valuable addition to recognize the tremendous efforts of thousands of people and companies contributing to the success of the Arduino ecosystem.
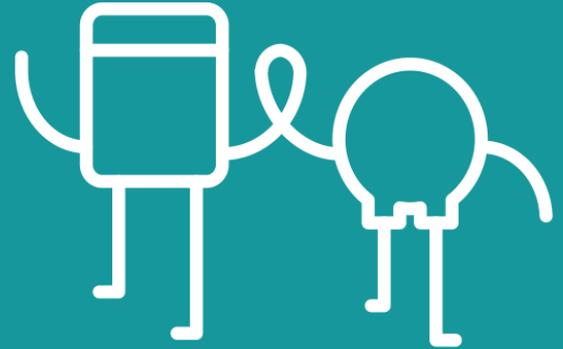
That's a wrap
Thank you!

This report has been compiled in good faith and with a commitment to fairness, based on the data currently available to us. If you have any questions or identify any inaccuracies, please contact us so we may address them.

The Arduino Team