



PHYSICAL COMPUTING

OVERVIEW OF DIFFERENT TYPES OF BOARDS

WHAT ARE RAPID PROTOTYPING BOARDS?



Electronics boards are the prototype which include microcontroller, microprocessor and some hardware to build applications.



Boards are simple single chip on computer. We can design anything with help of electronics boards, microcontroller, microprocessor play important role in electronics board



Some of popular boards are as Arduino boards, Intel Genuino 101 board, Raspberry Pi etc.



ARDUINO BOARDS



Arduino is the popular open-source electronics prototyping stage focused around simple to-utilize equipment and software. It's proposed for specialists, designers, and anybody intrigued by making intelligent articles or situations and is intended to be as adaptable as would be prudent to fit your venture's necessities.



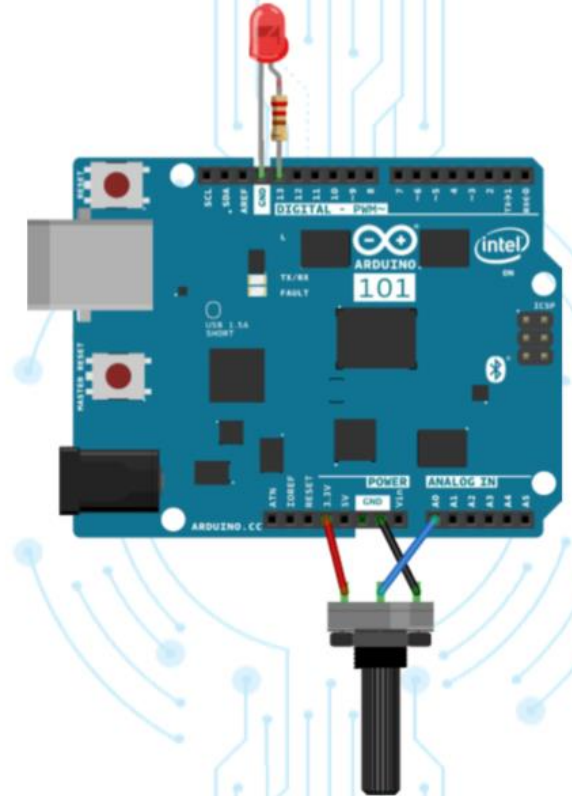
The Arduino Development Board is a good example of top development boards for DIY projects.



Arduino is a company that deals with open source computer hardware and software.

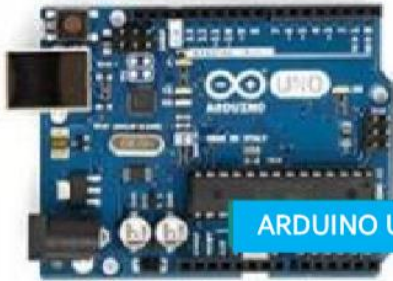


The company designs and does manufacturing of kits creating digital devices and many interactive objects which have the capability of sensing and making good control of the whole physical world. Since it is an example of a microcontroller, it works swiftly and steadily. It is manufactured primarily by Smart Projects in Italy and many other countries and vendors.

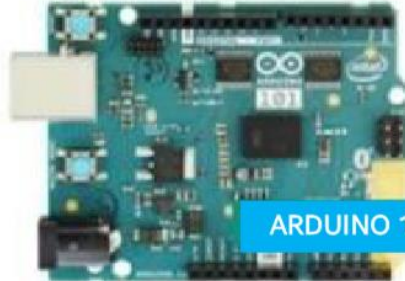




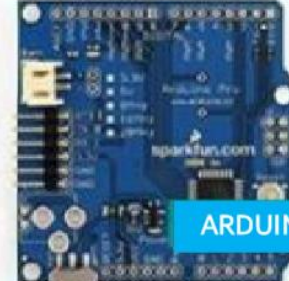
TYPE OF ARDUINO BOARDS



ARDUINO UNO



ARDUINO 101



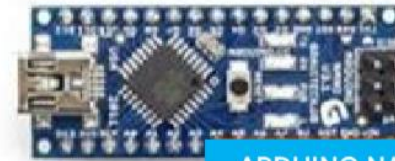
ARDUINO PRO



ARDUINO MICRO



ARDUINO PRO MINI



ARDUINO NANO



ARDUINO LILYPAD



INTEL GENUINO 101 BOARD



Intel Genuino 101 Development Board is an affordable learning and development board ideal for entry-level makers and education environments. The Intel Genuino 101 development board is the first widely available development board based on the tiny, low-power Intel® Curie™ module.



In addition to being easy to use and well-suited for foundational learning exercises, the Intel Genuino 101 development board can be used to prototype technology-based products that connect and compute. This will be accomplished thanks to the powerful features of the Intel® Curie™ module.



This development board is priced comparably to entry-level microcontroller boards available today. It features an accelerometer, gyroscope and Bluetooth Smart connectivity to enable the development of smart, connected devices.





SINGLE BOARD COMPUTER - SBC



It is a complete **computer** built on a **single circuit board**



SBC has microprocessor(s), memory, input/output (I/O) and other features required of a functional **computer**



RASPBERRY PI



The Raspberry Pi is a single-board computers developed by the Raspberry Pi Foundation in UK



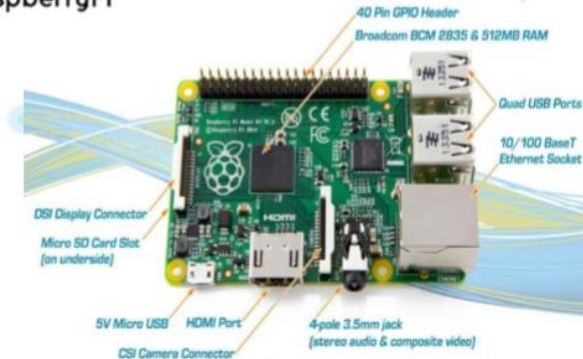
Was designed for Education Application

Pi Zero

Smaller & Less Computing Power



RaspberryPi



SHIELDS



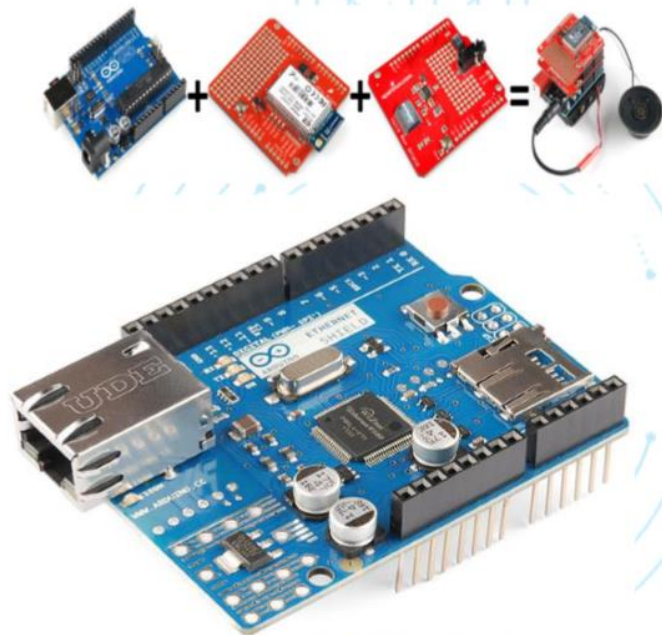
Arduino shields are modular circuit boards that piggyback onto an Arduino board to instill it with extra functionality.



Many Arduino shields are stackable. You can connect many shields together to create a “Big Mac” of Arduino modules. You could, for example, combine an *Arduino Uno* with a *Voice Box Shield*, and a *WiFly Shield* to create a *WiFi Talking Stephen Hawking™*.



Shields are often supplied with either an example sketch, or a [library](#). So, not only do they just simply plug into your Arduino, but all you need to do to make them work is upload up some example code to the Arduino.



BREAKOUT BOARDS



A breakout board takes a single electrical component and makes it easy to use.



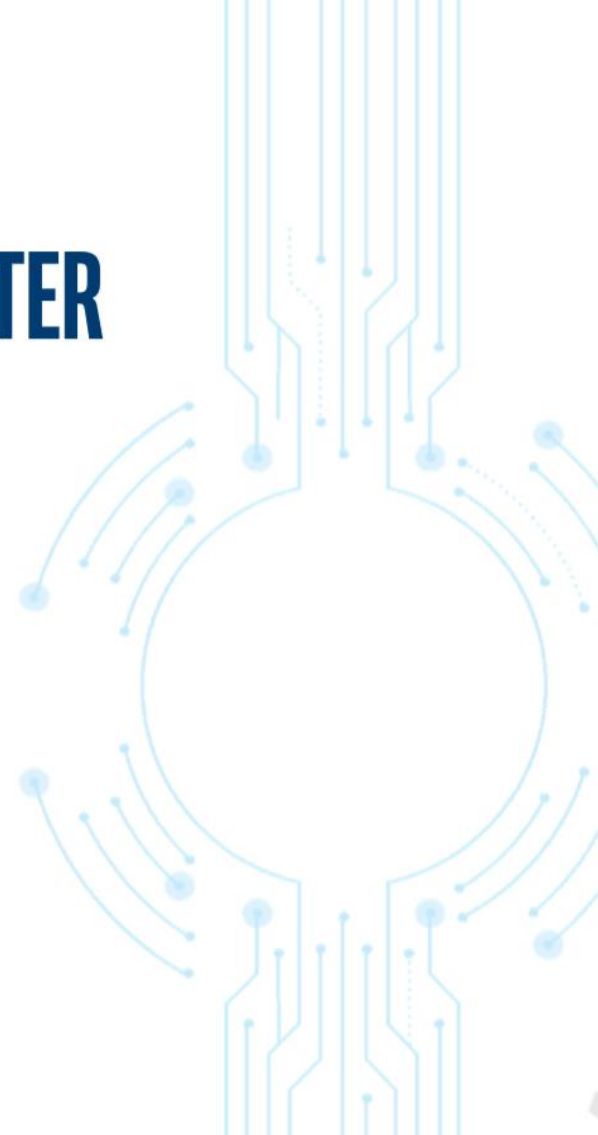
There are all type of breakout boards – but most of them are for different types of sensors, for example: accelerometers, ultrasonic distance sensors, RFID tag sensors, temperature sensors, pressure sensors, and they even have seismic breakout boards for sensing dinosaurs' footsteps!





APPLICATION OF SINGLE BOARD COMPUTER

- Robotics Projects
- IOT Projects (Farm monitor, Weather Station, Pet Feeder etc)
- Make AI Bots (EX. TWITTER BOT)
- Penetration Testing Device (KALI as OS)
- Tablet computer
- Wireless Security System
- IOT products
- Continuous integration Traffic light
- Digital Signature
- Robotic camera operator

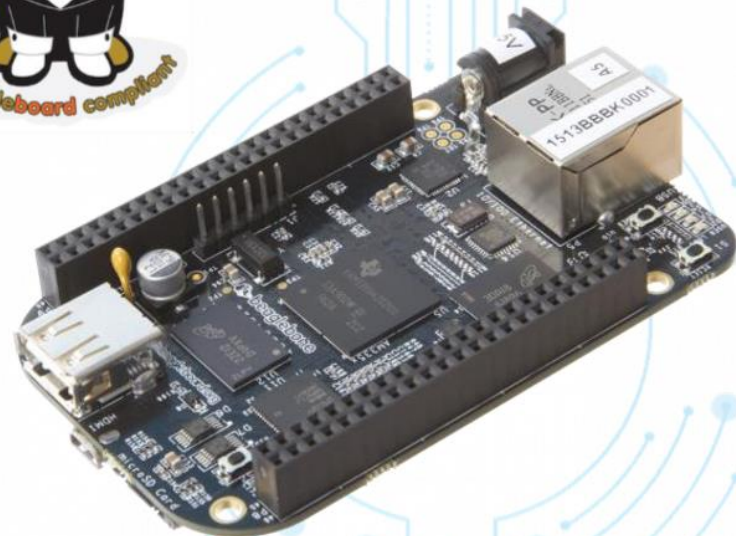




BEAGLEBONE



The BeagleBoard is a low-power open-source hardware single-board computer produced by Texas Instruments in association with Digi-Key and Newark element14.



A cluster of five interlocking gears is positioned in the top left corner. The gears are in various shades of blue, yellow, and orange. They are of different sizes and are partially cut off by the edge of the frame.

THANK YOU