



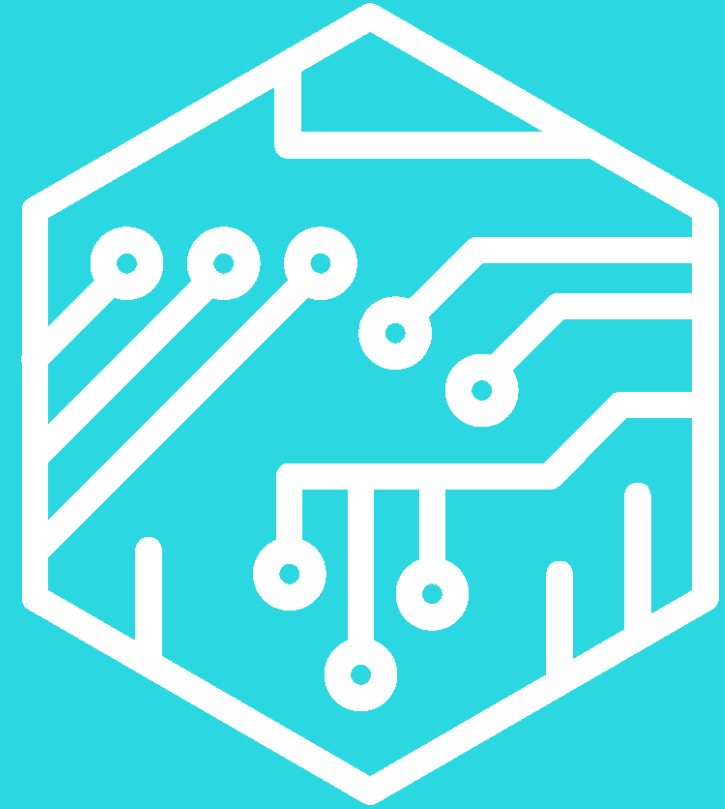
# INTRODUCTION TO Physical Computing





# Physical Computing

Physical computing provides tools that bridge the analog and digital worlds. From the inputs of sensors to environment to outputting light, sound, and/or motion, interaction becomes possible, and through coding, endlessly customizable.



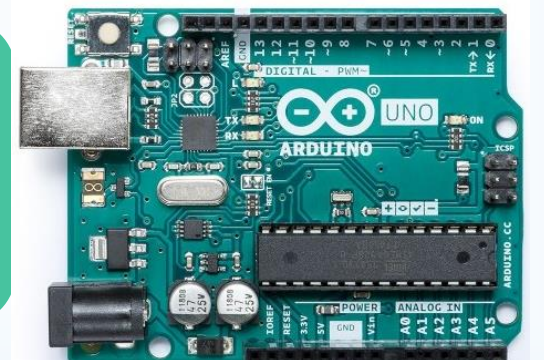
# What Are Rapid Prototyping Boards?

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



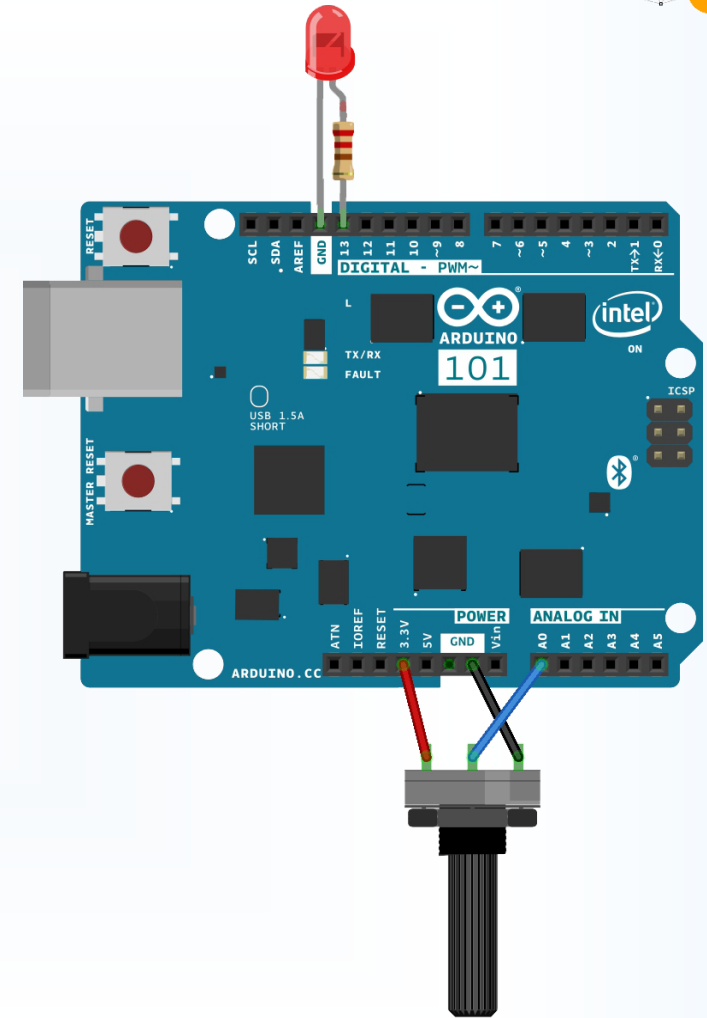
Electronics boards are the prototype which include microcontroller, microprocessor and some hardware to build applications.

Some of popular boards are as Arduino boards, Raspberry Pi etc.



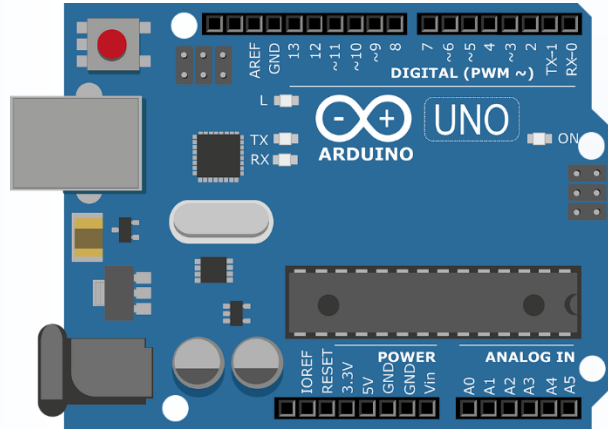
# Arduino Boards

- 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



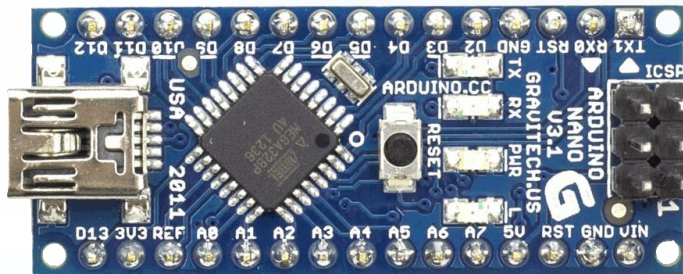
Arduino UNO



Arduino Pro



Arduino Pro Mini



Arduino Nano



Arduino Micro

# Arduino LilyPad



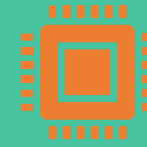




# Single Board Computer - SBC

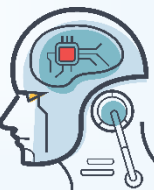
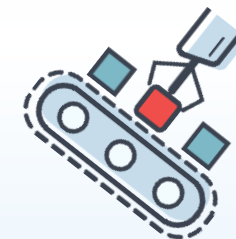
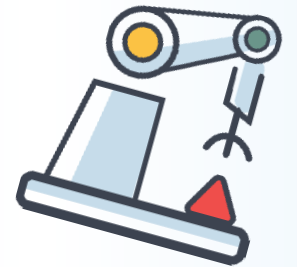
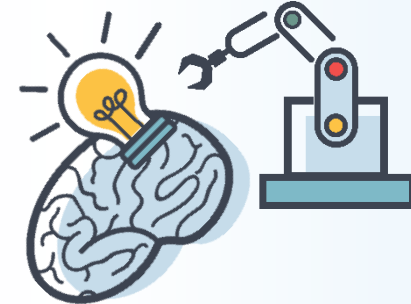
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It is a complete computer built on a single circuit board

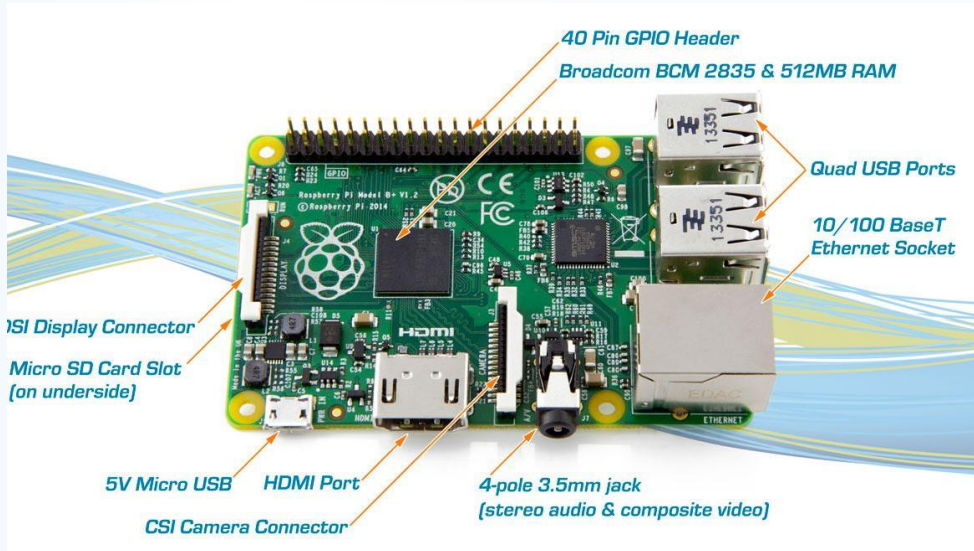


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SBC has microprocessor(s), memory, input/output (I/O) and other features required of a functional computer



# Raspberry Pi

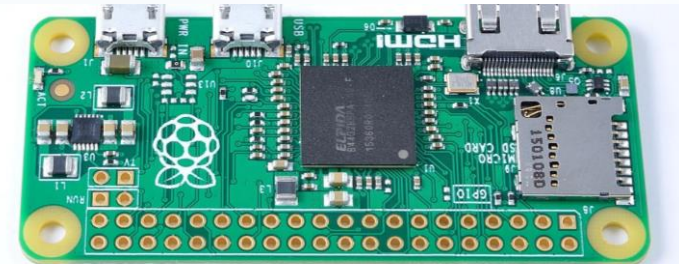


The Raspberry Pi is a single-board computers developed by the Raspberry Pi Foundation in UK

Was designed for Education Application

## Pi Zero

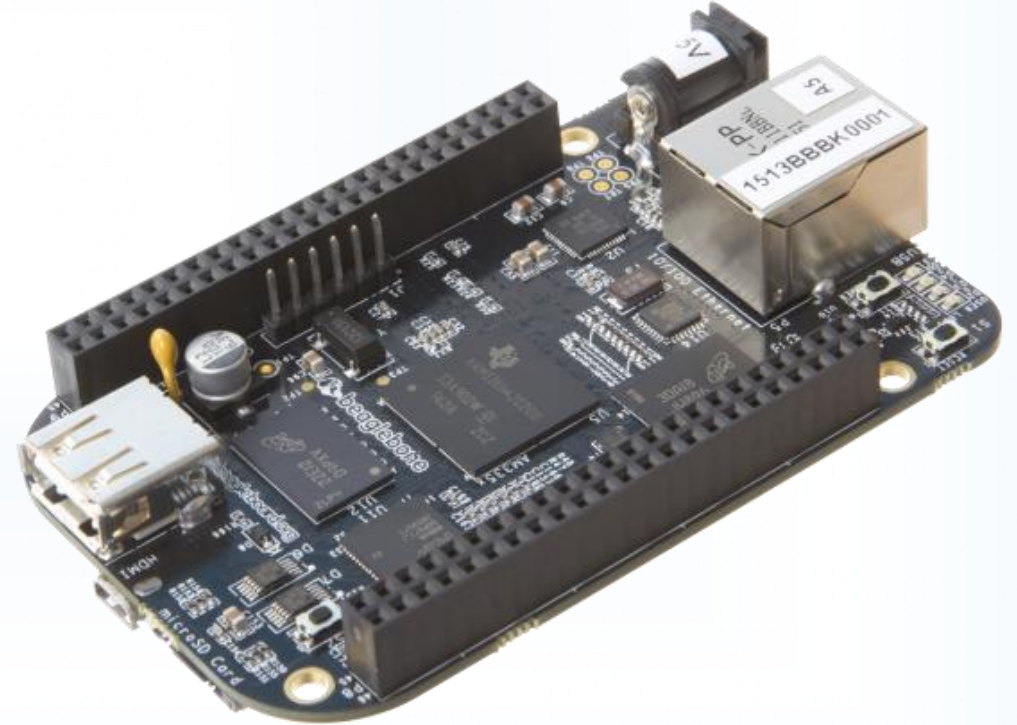
Smaller & Less Computing Power



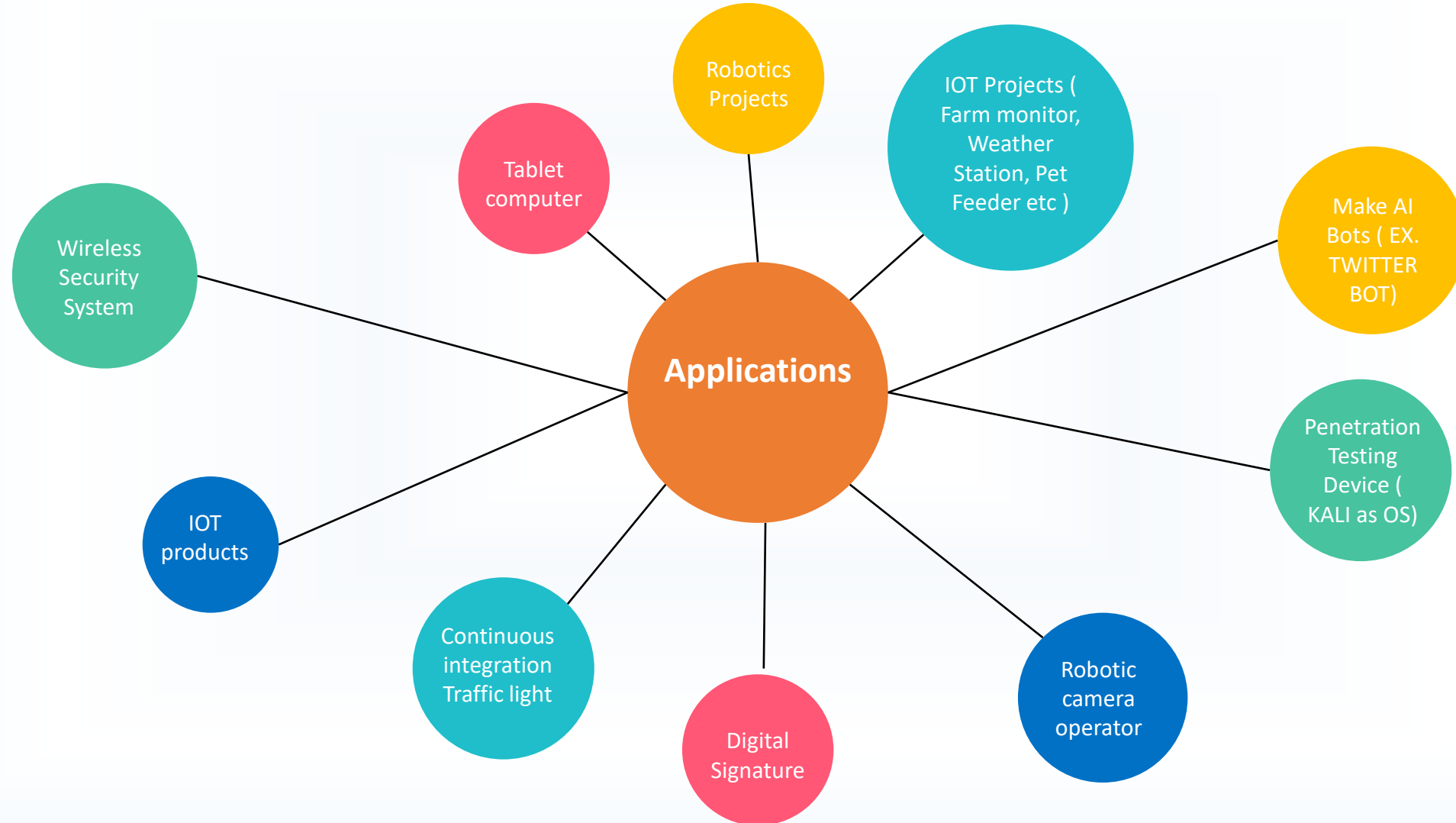


# Beagle Board

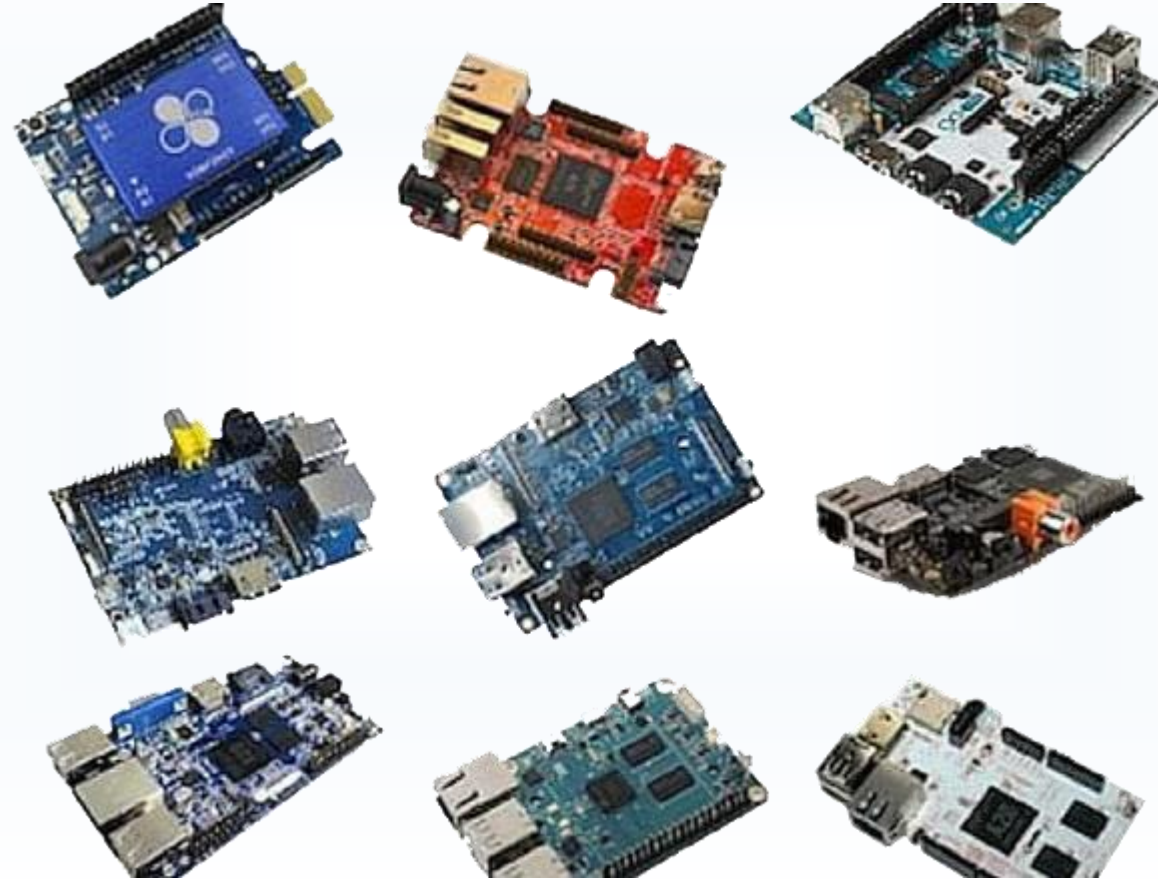
The Beagle Board is a low-power open-source hardware single-board computer produced by Texas Instruments in association with Digi-Key and Newark element14.



# Application of Single Board Computer



# Various Single Board Computers

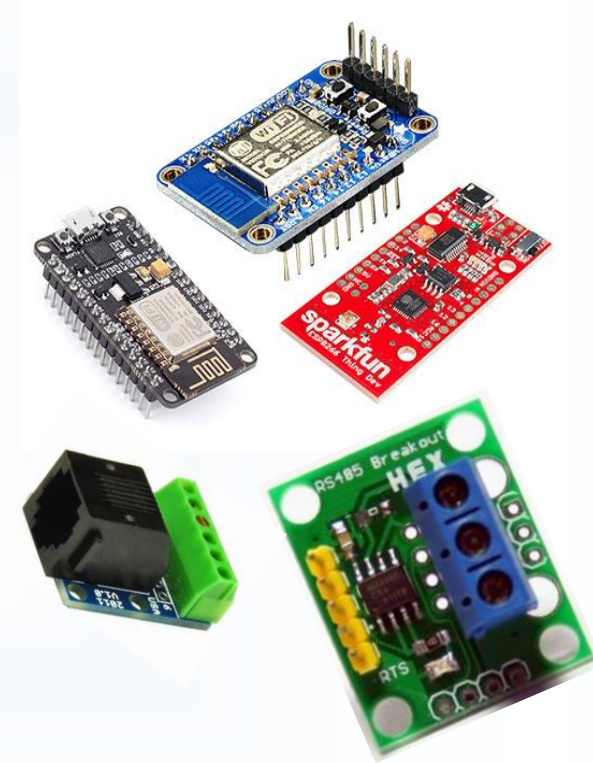




# Breakout Boards

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!



# 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.

