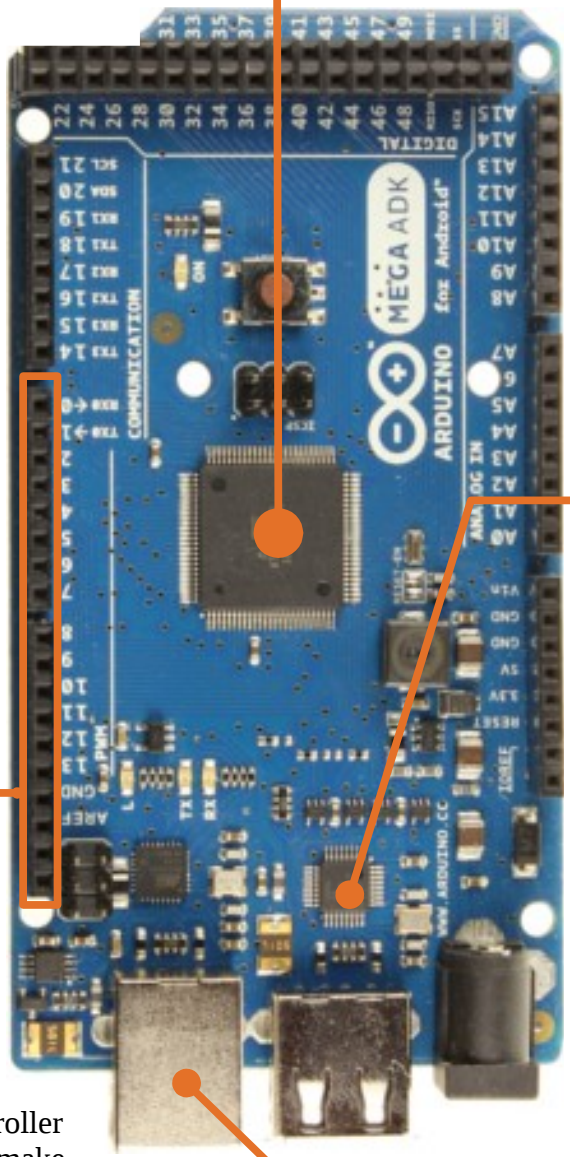
Arduino Mega ADK

The Mega ADK is one of the many inexpensive open source microcontroller boards that make learning and building electronic circuits fun. It can be used to build electronic projects that can also communicate with any supported Android device. With the free Arduino software, any one can easily change the functionality of the board simply by reprogramming the microcontroller.

Atmel ATmega2560

The brain of the Mega ADK is it's ATmega2560 microcontroller chip. It is essentially a mini-computer with it's own processor, RAM, and ROM. The microcontroller can talk to a computer, control the board's I/O pins, communicate with an Android device, and even communicate with other Arduinos. Whatever program resides on the microcontroller, determines the functionality of the board. Although the Arduino language simplifies programming through it's own Integrated Development Environment (IDE), the chip can also be programmed in C and C++. Atmel (the chip manufacturer) provides the ATmega2560 data sheet for free online, for those who are more experienced in programming.



There are 54 digital input and output pins on the board that are connected directly to the microcontroller. When the pins are connected to a circuit the microcontroller can supply high and low voltages or read in the signals as ones and zeros. When programming the microcontroller these signals can be used to make decisions. For example, if a light detector signals there is no light, the controller can send a signal to the lamp to switch it on. The board has 4 receiver transmitter pins (UARTs) that can be used to communicate with other forms of computers such as modems, printers and any other serial or parallel peripherals.

ARDUINO
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The ADK Model

separates itself from other Arduinos with its USB Host Controller chip. This chip allows the board to talk to Android based-devices. When the Arduino is connected to an android device, the board has access to all the peripherals of that device e.g. GPS, Wi-Fi, BlueTooth, motion sensors, etc. Google's Android Development Kit is also an open source project.

When the Arduino is connected through the USB port to a computer, any one can program and reprogram the chip in order to read from and control any circuit it is connected to. For example, if the current program is to turn a light on and off every five seconds, a user could easily reprogram the microcontroller to switch every ten seconds, simply by modifying a few lines of code using the free Arduino IDE. The Arduino IDE also includes a monitor, which allows for real time communication with the board. Using the monitor, one can send textual commands the board and receive feedback.