Pi companion

A charrold303 companion guide



Chris Harrold – www.charrold303.com

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# WElcome!

Thanks for attending my workshop, Introduction to Raspberry Pi development and building! I am very excited that you have chosen to invest your time with me today, and in the spirit of respecting that investment, I have prepared this guide to make sure you have as much information as possible at your fingertips.

# Glossary

Technology is full of acronyms that are really important and often times poorly or completely misunderstood. This glossary of terms will be helpful for understanding the presentation and materials we will cover in our workshop, and just for general knowledge!

## Hardware Terms:

**Single Board Computer** - a complete computer built on a single circuit board, with microprocessor(s), memory, input/output (I/O) and other features required of a functional computer.

**Raspberry Pi** – an example of a Single Board Computer that was designed for hobbyists and enthusiasts to offer a low-cost, fully functional computer in a small form-factor.

**PIN** – A part on a circuit board where an external device, sensor, input or output may be connected.

**GPIO** – an acronym that stands for General Purpose Input/Output. It is used to refer to any pin that is not defined by the pin itself but is defined at runtime (see “runtime” under Software Terms).

**Breadboard -** A breadboard is a construction base for prototyping of electronics. TRIVIA SIDE NOTE: (Originally it was literally a bread board, a polished piece of wood used for slicing bread. This was popular with early electronics builders because they were cheap, sturdy, and did not conduct electricity!)

**LED** – Light Emitting Diode – a small device that uses a lot of very deep scientific principles to emit light. For our purposes, it is a small, electric light that can operate at VERY low voltage.

**Circuit** – any complete electrical connection is a circuit. From the lightbulb and light switch you used this morning, to your phone charger, to the circuit you will build in this workshop. Electricity flows from + to – through a circuit. No circuit, no flow of electricity.

**Resistance** – a property in electronics that allows us to reduce and control the flow of electricity through a circuit.

**Resistor** - a passive two-terminal electrical component that implements electrical resistance as a circuit element. This is the fancy way of saying that it causes the amount of electricity flowing through it to be reduced. Think of it as an electricity traffic cop for your circuit.

## Software Terms:

**Code** – the underlying construct of any computer software, app website, or anything that has to do with computers. There are many, many types of code. Code is written in different languages. Like all languages, all different code languages have their own syntax, grammar rules, and general flow.

**Python –** A type of code language. There are many, this one is the one we will use. It is good for things like hardware interfaces because of its support for libraries that make integrations possible with little to no additional code.

**Runtime** – the time during which your code is running. This is when all the things you are telling the computer through your code to do actually happen.

**Bug** – an undocumented feature of your code. This is a behavior that you did not expect based on a set of conditions that happen through the use of your cod.

**Runtime Error (also debug error, compiler error)** – happens because you have something incorrect in the code. Usually this is caused by poor syntax or trying to do things in the code that the code doesn’t allow.

**Loop** – a flow in code that is controlled by executing a test for a condition, and then responding by doing something until the test is passed. Examples of loops are: FOR, WHILE, IF, DO, and INFINITE

**Comment** – the most important part of any code. Comments are your notes to future generations about your code; why it is what it is, what it does, and how you got it there. Comment early and often for best results!