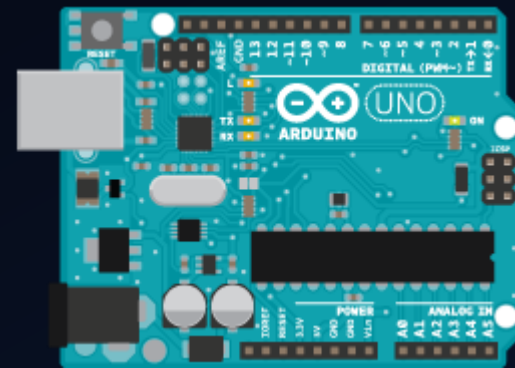


Arduino Projects

IR Remote Control

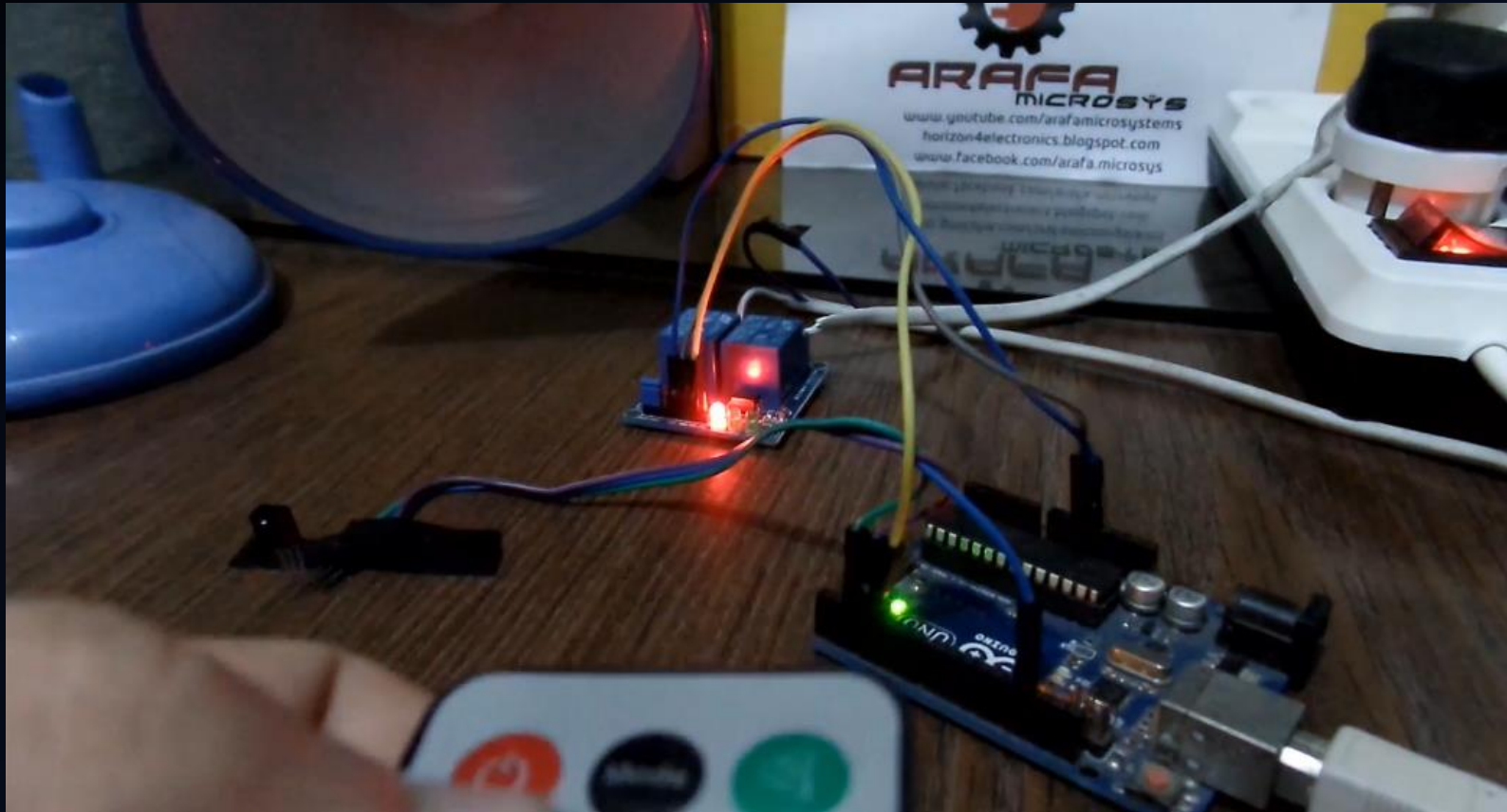


BY ENG. HOSSAM ARAFA

Summary


- Demonstration of the example (Application)
- Parts Required
- Fritzing Sketch
- Working Principle
- Quick Overview of Arduino Sketches

Demonstration of the example (Application)



Video 1 – IR Remote App

Parts Required

- Arduino (any type)
- IR Receiver Diode An IR receiver diode component, which is a small black plastic package with a clear lens on top and three long metal leads extending from the bottom.
- Any Remote Control (Which want to use it to control an Application)
- Jumper Wire

[IRremote Library](#)

Working Principle

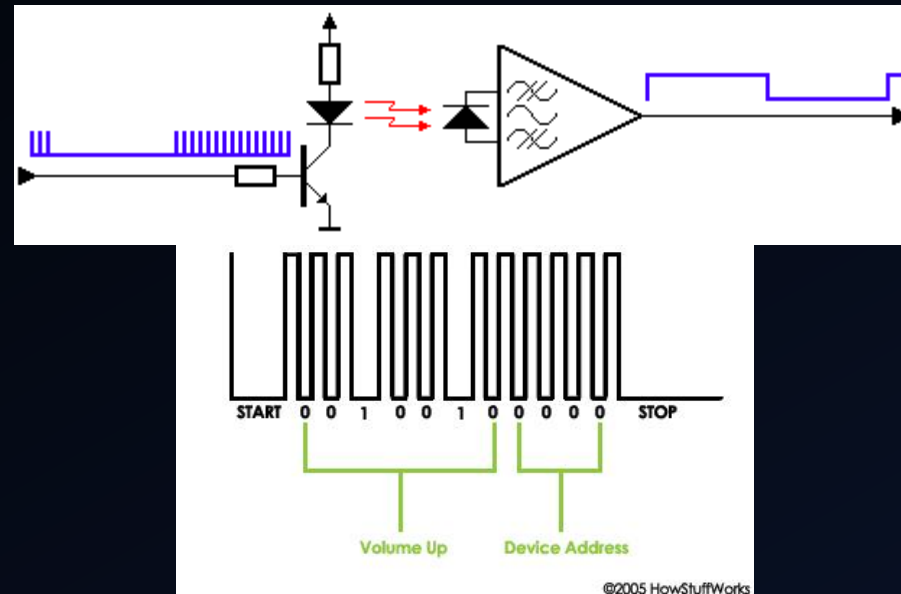


Figure 4 – IR Signals

IR, or infrared, communication is a common, inexpensive, and easy to use wireless communication technology. IR light is very similar to visible light, except that it has a slightly longer wavelength. This means IR is undetectable to the human eye - perfect for wireless communication. For example, when you hit a button on your TV remote, an IR LED repeatedly turns on and off, 38,000 times a second, to transmit information (like volume or channel control) to an IR photo sensor on your TV. [Ref-Sparkfun](#)

Cont. Working Principle

IR radiation is simply light that we cannot see, which makes it great for communication. IR sources are all around us. The sun, light bulbs, or any anything with heat is very bright in the IR spectrum. When you use your TV remote, an IR LED is used to transmit information to your TV. So, how does the IR receiver in your TV pick out signals from your remote among all of the ambient IR? The answer is that the IR signal is modulated. Modulating a signal is like assigning a pattern to your data, so that the receiver knows to listen.

A common modulation scheme for IR communication is something called 38kHz modulation. There are very few natural sources that have the regularity of a 38kHz signal, so an IR transmitter sending data at that frequency would stand out among the ambient IR. 38kHz modulated IR data is the most common, but other frequencies can be used.

When you hit a key on your remote, the transmitting IR LED will blink very quickly for a fraction of a second, transmitting encoded data to your appliance.

Cont. Working Principle

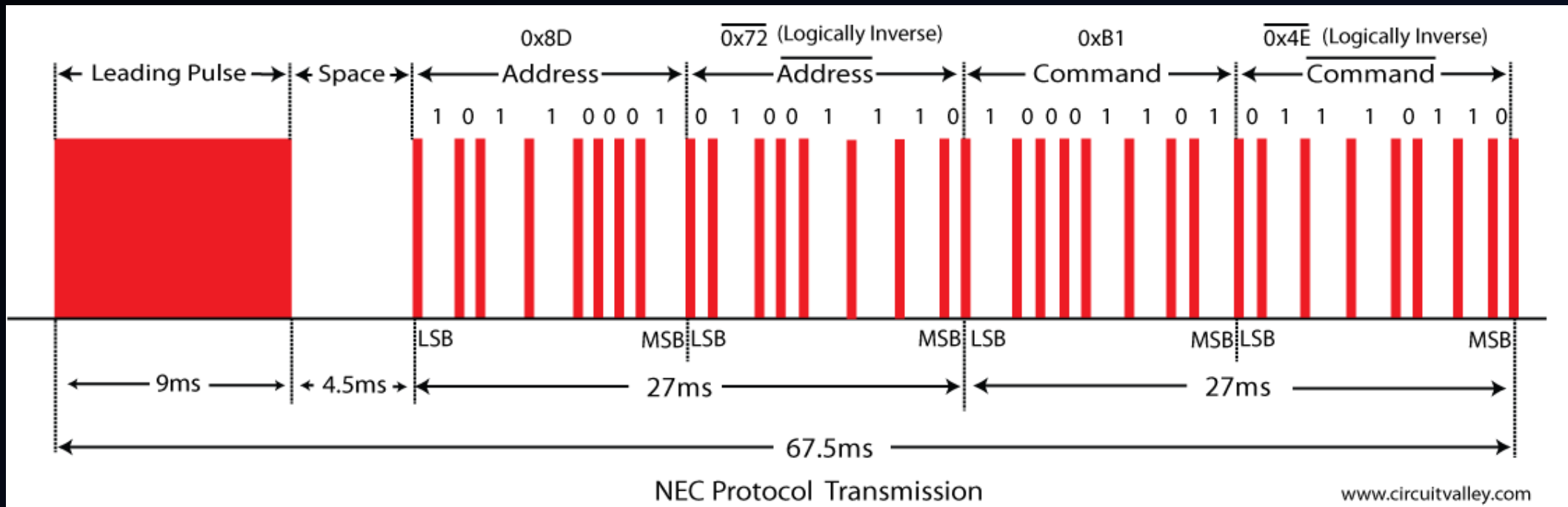


Figure 4 – e.g. NEC Protocol Transmission

Quick Overview of the Arduino Sketch

Arduino Sketches in the video description

Contact Information

I hope if you use the parts of the slides, mentioned the source in order not waste this effort.



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