

PROJECT REPORT

Encryption and Decryption between
users in Morse using a Flashlight



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➤ INTRODUCTION

Morse code is a method used in telecommunication to encode text characters as standardised sequences of two different signal durations, called dots and dashes, or dits and dahs. Morse code is named after Samuel Morse, one of the inventors of the telegraph.



International Morse Code

1. The length of a dot is one unit.
2. A dash is three units.
3. The space between parts of the same letter is one unit.
4. The space between letters is three units.
5. The space between words is seven units.

A	• —
B	— • • •
C	— • — •
D	— • •
E	•
F	• • — •
G	— — •
H	• • • •
I	• •
J	• — — —
K	— • —
L	• — • •
M	— —
N	— •
O	— — —
P	• — — •
Q	— — • —
R	• — •
S	• • •
T	—

U	• • —
V	• • • —
W	• — —
X	— • • —
Y	— • — —
Z	— — • •

1	• — — — —
2	• • — — —
3	• • • — —
4	• • • • —
5	• • • • •
6	— • • • •
7	— — • • •
8	— — — • •
9	— — — — •
0	— — — — —

➤ USAGE

As telecommunications began to evolve, the Morse Code system became pivotal during the World War eras. During WWII, **Morse Code was utilised between warships and naval bases**, because radio frequency was limited and also easily identifiable by military enemies.

Morse Code is **most prevalent in Aviation and Aeronautical fields** since radio navigational aids such as VOR's and NDB's still identify in Morse Code. The US Navy and Coast Guard still use signal lamps to communicate via Morse Code

Used by spies.

Used for help.(signal "SOS")

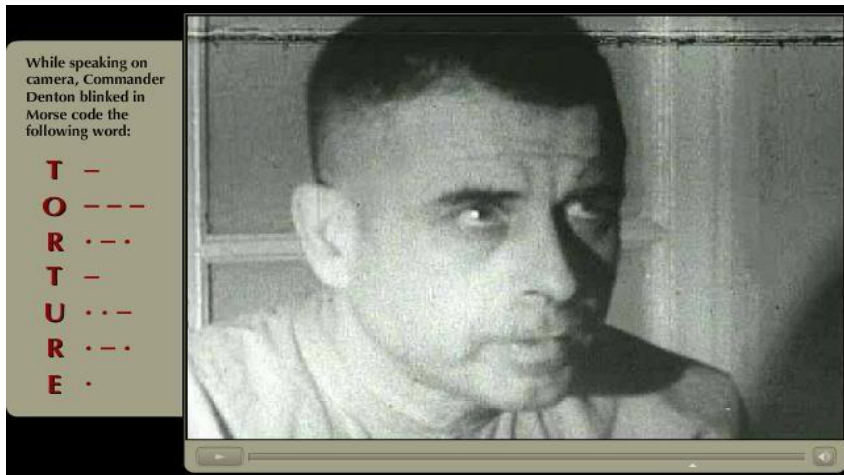


➤ MEDIUM

Morse code is usually transmitted by **on-off keying of an information-carrying medium such as electric current, radio waves, visible light, or sound waves**.

The current or wave is present during the time period of the dit or dah and absent during the time between dits and dahs.

The most interesting part of this is that it doesn't require any medium for communication like you communicate through eyes, pen-click , torch or any other.



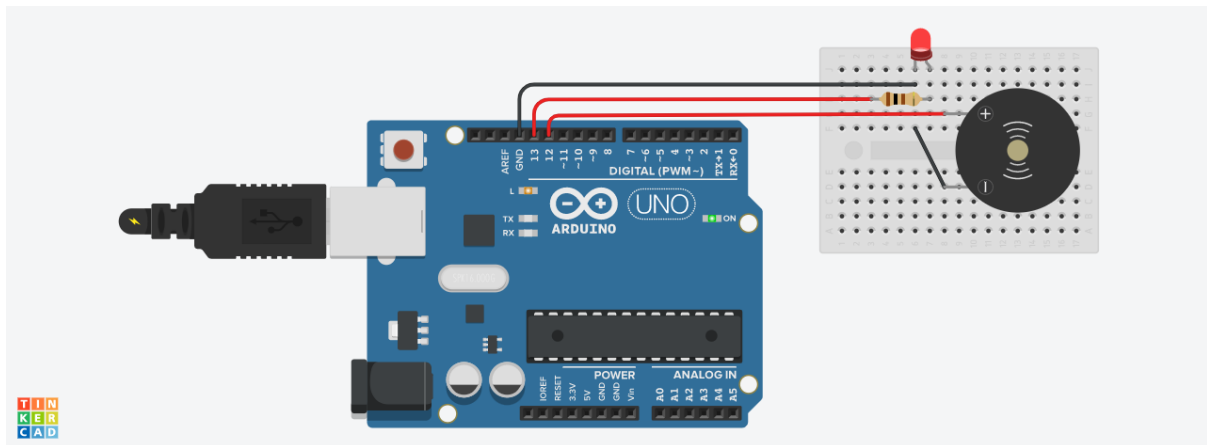
Denton was widely known for enduring almost eight years of grueling conditions as an American [prisoner of war](#) (POW) in [North Vietnam](#) after the [A-6 Intruder](#) he was piloting was shot down in 1965.

As one of the earliest and highest-ranking officers to be taken prisoner in North Vietnam, Denton was forced by his captors to participate in a 1966 televised propaganda interview which was broadcast in the United States. While answering questions and feigning trouble with the blinding television lights, Denton blinked his eyes in [Morse code](#), spelling the word "T-O-R-T-U-R-E"—and confirming for the first time to U.S. [Naval Intelligence](#) that American POWs were being [tortured](#).

- Create a link (program or interface (no external components)) between Morse and a flashlight and that should blink with respect to Morse.

Components used- Arduino, buzzer , LED ,Resistor, C code.

Circuit Diagram:



Conclusion: circuit is working fine with respect to input morse code.

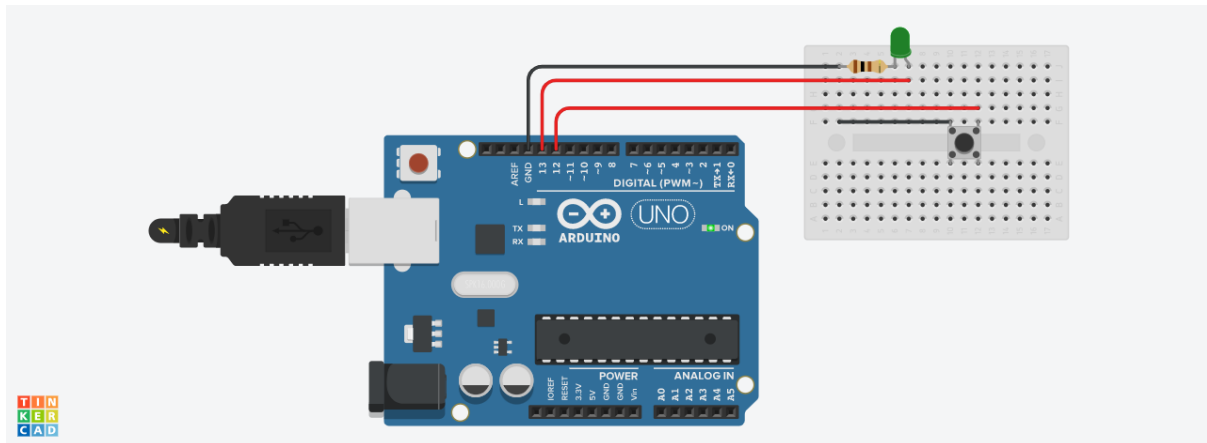
Working link:

<https://www.tinkercad.com/things/5WcHaGbtpWw-code-to-light/editel?sharecode=hi8x3GKLxdR4iiF8qlb7bsjARWEnIof4NsuVSohowG8>

- Create another program to record the flash and that flash-toggling should be again reconverted into Morse and then decrypted into text.

Components used- Arduino, Push Button , LED ,Resistor, C code.

Circuit Diagram:



Working - Input is given through the push button as the simulation part light sensor won't work. After the arduino passes the signal And with the help of our code we are able to get the encrypted message via the alphabets.

https://www.tinkercad.com/things/88D8OKxUOYb-decryption/editel?sharecode=q5lXnu9iTvz_T5WhDNTG8yCGoLN4xD30gdnnPwtgB8

Video Demo

<https://youtu.be/YAYz97FpVGg>