

# Morse Code Translator

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## Abstract

In a vast expanding world that greatly relies on technology to carry out daily tasks, it also holds a great risk of technology being taken advantage of to do immoral things. One of the most often seen immoral uses of technology is to violate privacy and make use of unpermitted information. One way of mitigating these risks and problems is to make use of the advantage of Morse code which has been around for a long time already but is being overlooked by many. The vision is to give birth to an app that caters to communication with the use of Morse code to greatly add security to messages and exchanged information. It can all be accessed with the click of a button, which makes it a lot less hassle to use Morse code for communicating. It will feature a simple user interface that can cater to multiple functions. Functions that can be seen are text to morse translation, Morse-to-text translation, an audio player to play the Morse audio output, and lastly, a guide to help in decoding Morse code for those users that are new to using this type of communication. This would help kick off the use of Morse code as an alternative to our traditional messaging apps. Users will have an additional layer of protection for the privacy of the messages they exchange with their contacts, which also means that they would also gain additional confidence and a feeling of security when they make use of this platform. The advantages are also not limited to just the security and privacy, but also to the opportunity to learn or help others to be educated and familiarize themselves with Morse code. This platform shall promote a user-friendly app that helps improve the way of living of the masses in this technologically relying world.

# Introduction

Our application would possess the capability to translate text to Morse, morse to text, accompany the translation with corresponding audio, and feature a guide for those who are not familiar with Morse translation. It will be an application that features a simple user interface that would be easy to access and easy to grasp for the user. Existing uses of Morse translation can be seen in emergency services (like 911), military applications, remote area wireless communications, and education. It is often implemented in emergency services and military usage due to its ability to cater to strength and stability in further ranges.

- **Who is your target user?**

Target users are the common masses, hobbyists, students, educators, emergency services personnel, military personnel, and the like.

- **What problems does your user encounter?**

One of the possible problems the user may encounter is the unfamiliarity of the translation for Morse code, which we aided by providing a guide for its translation.

- **What *value* do I want to provide to the user?**

For this application, we would want to provide the user with accessibility, simplicity, accuracy, real-time functionality, and technical support. The user may be able to access it whenever, wherever, and still retain its consistent accuracy. There would also be available technical support if ever the user happens to encounter a problem after the application has been used.

- **Why is this application significant?**

This application is significant in the sense that it can be applied to real-world situations, and it also has the potential to improve the way of living in today's fast-evolving world that relies on technology.

- **What contemporary issues in engineering work does your application address?**

In the field of engineering, signal processing for communication handling and interoperability in emergency services are two of the issues that are often encountered. Morse code is also known for its robustness and stability in low-signal environments, this means that it has a further range when it comes to wireless communication and signal processing, which may be useful for some developing areas that do not have other options available for connections. It is also useful for emergency situations which are often seen in 911 calls where devices are capable of decoding Morse code information,

its interoperability is also useful because it can reach out to different branches of emergency services, which comes in handy depending on the situation. Lastly, it can also be used to educate in the field of engineering.

## Functionalities

This section describes the list of functionalities that you want to build as part of the application. Preferably, this list should be as granular as possible.

**You can create these sets of functionalities by formulating a table as shown below**

TABLE I. Table Type Styles

The benefactor*	Describe the expected behavior	What's the benefit to the target benefactor
Students	Converts text to Morse code and displays the visual representation with sound playback for guided learning.	This program will help the students learn and practice communicating using Morse code.
Educators	Acts as an additional resource for teaching the students Morse code.	With the help of this program, it would be easier for our educators to teach Morse code to their students.
Hobbyist	Provides both audio and visual representation of Morse code.	This program allows hobbyists to enhance their Morse code skills.
Military Personnel	Encode classified messages in Morse code for secure and fast transmission.	With this program, the military personnel and

		decoders would have no trouble encoding and decoding orders.
Emergency Services Personnel	A quick text-to-Morse code conversion and vice-versa for faster communication.	This program ensures reliable and fast communication during emergencies in case regular communication methods are unavailable.

\*When we say the benefactor, think of a *person* who would benefit from the said functionality. For example, accountant, student, farmer, project manager, etc.

## Walkthrough

**Step 1:** Open the application.

**Step 2:** Select "Morse Code Chart" to learn the codes for each letter and number. Click on any letter or number to hear its Morse code audio representation.

**Step 3:** If you wish to translate a text to its Morse code equivalent select the "Text-to-Morse" tab.

**Step 4:** Enter a simple word or phrase in the "Text-to-Morse" input field (e.g., "SOS"). You can use the "⌫" button to delete the last character you entered if you made a mistake.

**Step 5:** Click "Translate" to see the Morse code translation. Letters are separated by a "/" and words are separated by "/ /" (e.g., "••• / — — — / •••").

**Step 6:** Click the "▶ Play" button to listen to the Morse code translation and follow along with the visual output. Click the "■ ■ Pause" button to pause the audio. Click the "↺ REPEAT" button to

play the audio again from the start. Click the “Reset” button to clear the contents of the input and output fields.

**Step 7:** If you wish to translate a series of Morse code to its text equivalent select the "Morse-to-Text" tab.

**Step 8:** In the "Morse-to-Text" input field, using the dot “•” and dash “—” buttons enter the appropriate sequence for each letter/number. Use the “/Separator” button to add a “/” between a series of dots and/or dashes representing a letter/number. Add “/ /” to separate a series of dots and/or dashes representing words (e.g., “• • • / — — — / • • • “). You can use the “⌫” button to delete the last character you entered if you made a mistake.

**Step 9:** Click "Translate" to see the text translation (e.g., "SOS").

**Step 10:** Click "Play" to listen to the Morse code that you previously entered in the "Morse-to-Text" input field.

**Step 11:** Click the "► Play" button to listen to the Morse code translation and follow along with the visual output. Click the “■ ■ Pause” button to pause the audio. Click the “↺ REPEAT” button to play the audio again from the start. Click the “Reset” button to clear the contents of the input and output fields.