

# A Novel Approach of Arduino UNO based Morse Code Generation

Abhishek Banerjee

ECE Department  
JIS College of Engineering  
Kalyani, Nadia

Shaktik Guria

ECE Department  
JIS College of Engineering  
Kalyani, Nadia

Subhranil Samanta

ECE Department  
JIS College of Engineering  
Kalyani, Nadia

Soumik Das

ECE Department  
JIS College of Engineering  
Kalyani, Nadia

Prof. Moumita Pal

ECE Department  
JIS College of Engineering  
Kalyani, Nadia

**Abstract:** This straightforward Arduino project is a Morse Code station. Morse Code is a specific strategy that encodes characters as a movement of spots and runs. This circuit uses a piezo chime to make the spots and runs recognizable. Using the catch, you tap in the Morse code, the chime sounds with each press of the catch and the OLED show shows the decoded message. By far most aren't familiar with Morse Code, so I have consolidated an image showing the total of the International Morse Codes underneath:

A	· -	J	· - - -	S	· · ·
B	- · · ·	K	- · -	T	-
C	- · · -	L	· - · ·	U	· · -
D	- · ·	M	- -	V	· · · -
E	·	N	- ·	W	· - -
F	· · - ·	O	- - -	X	- · · -
G	- · · ·	P	· - - ·	Y	- · - -
H	· · · ·	Q	- - · -	Z	- - · ·
I	· ·	R	· - ·		

Figure1: International Morse Code

## 1. INTRODUCTION:

Morse code is an arrangement of correspondence to encode any character in two unique terms of signs called Dots and Dashes. Morse code is created by Samuel F.B. also, further utilized in telecommunication for moving restricted intel. It was generally utilized at the hour of World War II. A Morse code can be performed by tapping, blazing light or composing. The Morse code is accessible in two forms, the first and the global morse code. In the worldwide morse code, the first form is adjusted by eliminating spaces and planning the runs in a particular length. The Morse code is accessible for encoding letters in order and numbers. It is fundamentally utilized in the radio and sea correspondence and furthermore a piece of preparing for warriors.

The language has consistently been the boundary for the Morse code, as it's difficult to play out the code for diacritic characters in other language. There are some celebrated words considered as significant component of Morse code like 'SOS'. SOS full structure is Save Our Souls made as an all inclusive trouble signal addresses peril.

The underneath picture shows the Morse code for the letter sets from A to Z. Circuit, squeezing it will close the circuit. All things considered, material switches are perceived from any excess kinds of switches by causing a real sensation when squeezed.

Some advanced employments of morse code are as per the following:

1. Morse code was the language that shorted ham radio. Hams today use it to impart farther than they can with voice modes. They additionally use it to keep this piece of radio dynamic.
2. Morse code assumes a major part in crisis correspondence. It tends to be heard when different modes can't.
3. It is utilized by warriors to pass on restricted data among themselves during war circumstances.
4. It is utilized in cryptography or potentially specialized strategies

## 2. BACKGROUND SURVEY:

The Morse code was created in the mid nineteenth century when individuals didn't know of developing circuits to send voice messages starting with one spot then onto the next. The message frameworks were methods for sending and

getting messages with assistance of electronic motivations. The Morse code was named so after its designer, Samuel F B Morse. It keeps on being the most straightforward, effective and moderate methods for correspondence as the device needed by it was basic. This technique demonstrated that capability in English was a prerequisite to speak with the remainder of the world. Later on, this code was acknowledged all around the world and a typical International Morse code has been created and utilized.

3. METHODOLOGY:

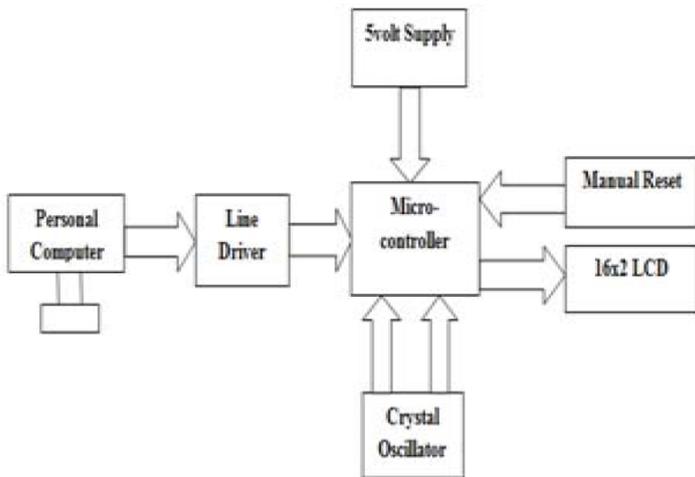


Figure 2: Block Diagram

3.1 DESCRIPTION:

Text input message as Morse code is given by squeezing the console keys of a PC. It is then associated with PIC18F452 microcontroller by means of DB9 connector. MAX 232 is line driver or a voltage convertor. PIC microcontroller is viable with TTL standard while Personal Computers are viable with RS232 standard. As per RS232 standard, rationale 0 relates to +10volts and rationale 1 to -10volts. Furthermore, as indicated by TTL standard, rationale 0 compares to 0volts and rationale 1 to 5volts. So when these two need to speak with one another, MAX232 is utilized for transformation between these two distinctive standard gadgets. Presently the content data is gotten by the PIC microcontroller. In the PIC microcontroller, an information base is made for the letter sets and mathematical with their relating Morse code. When the Morse input is given, its separate image gets chosen. PIC is additionally interfaced with the LCD. The Morse code and its letters in order are then shown on the LCD. The LCD can be utilized in 4-digit mode to save the information/yard lines. These empty lines can be additionally used in the progression of venture. Manual Reset is available on the grounds that when it is squeezed, 0volt is applied to Reset pin and microcontroller begins executing its code from 0000H area.

Likewise a model can be planned which can be utilized to communicate the read Morse code and convey the first instant message to the beneficiary over significant distances. These encoder and decoder modules can impart through wired or remote media according to prerequisite.

4. SIMULATION RESULTS:

In Proteus the hex document of gathered C code is unloaded into PIC microcontroller to check for the rightness of the code. On the virtual terminal info Morse code is composed with the assistance of console. Then, at that point on the LCD Morse code alongside its comparing decoded letters in order is shown.

For instance, in the above reenactment, on squeezing '- ' as contribution through the console, it is shown alongside its comparing letter set which is „A“ on the LCD.

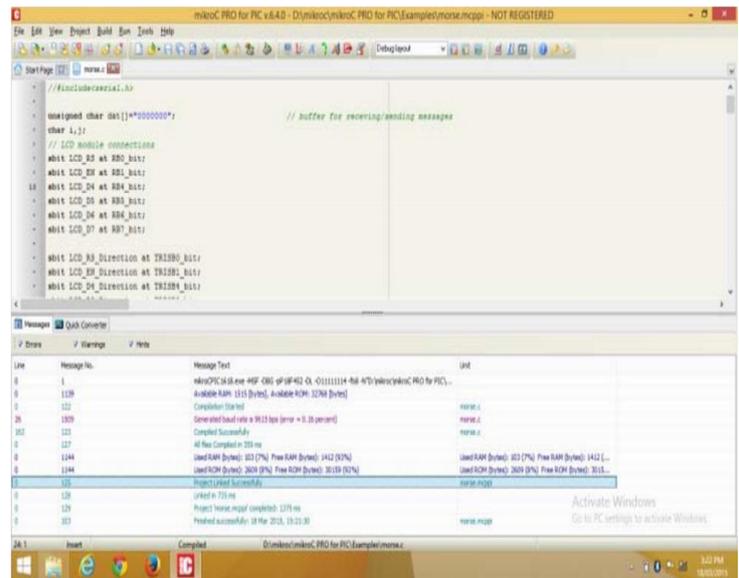


Figure 3: C code compilation MikroC for PIC

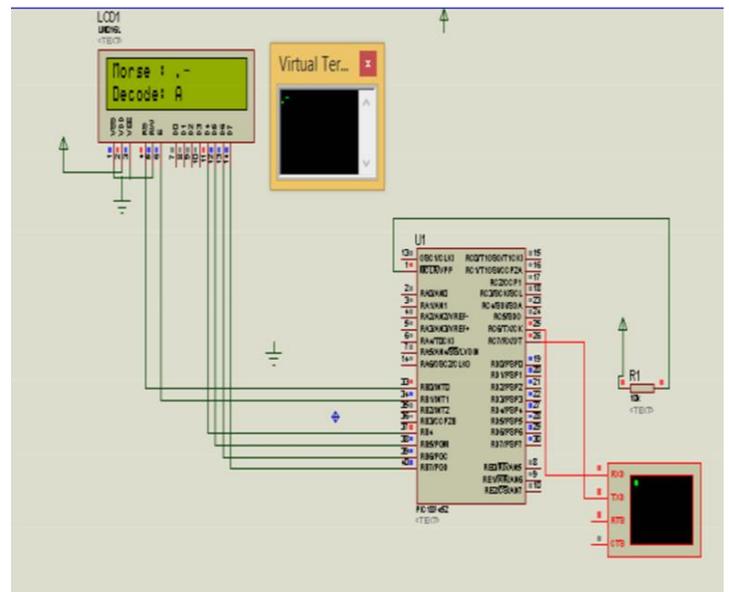


Figure 4: Simulation of C code in Proteus

5. OUTPUT:

5.1) Top View

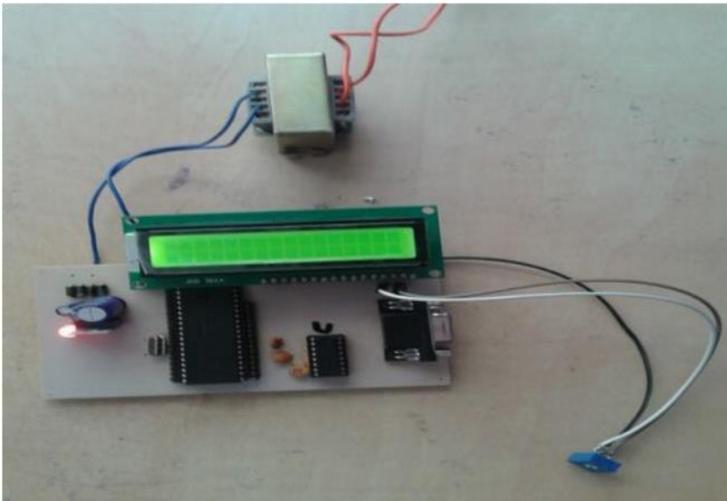


Figure 5: Top view of design

5.2) Bottom view

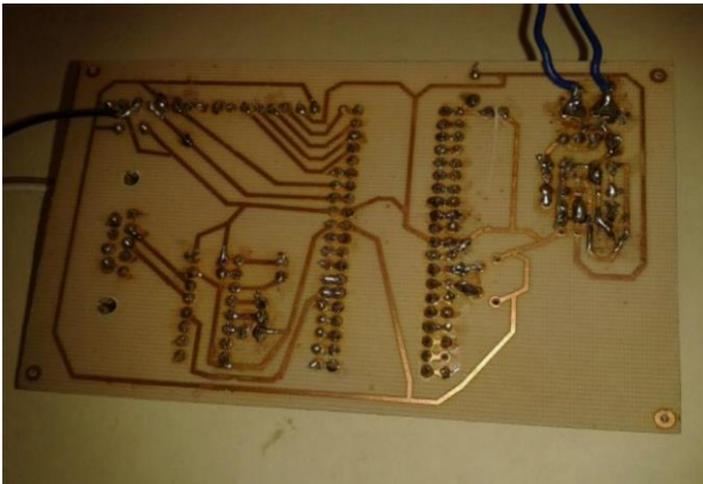


Figure 6: Bottom view of design

5.3) Test Result:

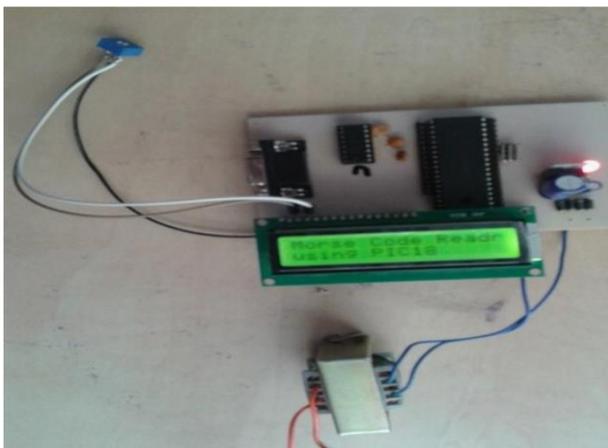


Figure 7: Test Result

Along these lines input message is sent in encoded arrangement for certain characters and the yield got is shown on the LCD as above. It's anything but a message as "Morse Code Reader utilizing PIC18".

6. CONCLUSIONS:

Our outcomes for this task address the overall ideas and strategies behind morse code. Our heartbeats are somewhat more than common standard morse code beats. This is on the grounds that more limited heartbeats request a higher examining rate, which in term implies more memory. Thus with longer heartbeats, we had the option to test at a lower rate and subsequently store less information. Today, the American Morse code is almost wiped out. A couple of novice radio clients and Civil War re-enactors still keep it alive. ... Pilots were needed to realize how to convey utilizing Morse code up until the 1990s. Today Morse code is fundamentally utilized among novice radio clients.

REFERENCES:

- [1] <https://create.arduino.cc/projecthub/mariogianota/morse-code-station-e1ee39>
- [2] <http://www.electronicshub.org/morse-code-generator-circuit-applications/>
- [3] [www.electronicshub.com](http://www.electronicshub.com)
- [4] [http://en.wikipedia.org/wiki/Morse\\_code](http://en.wikipedia.org/wiki/Morse_code)
- [5] [www.electronicsforu.com](http://www.electronicsforu.com)
- [6] [www.picproject.net](http://www.picproject.net)
- [7] Robert p. Bondnaryk, ,, Tactile Morse code
- [8] Manish Barse, Rondey Manuel, ,, Morse code-A security Enhancer

AUTHOR PROFILE:

**Abhishek Banerjee** was born in West Bengal state of India. He pursuing his B.Tech from JIS college of engineering, Kalyani, Nadia in Electronics and Communication.

**Soumik Das** was born in West Bengal state of India. He pursuing his B.Tech from JIS college of engineering, Kalyani, Nadia in Electronics and Communication.

**Shaktik Guria** was born in West Bengal state of India. He pursuing his B.Tech from JIS college of engineering, Kalyani, Nadia in Electronics and Communication.

**Subhranil Samanta** was born in West Bengal state of India. He pursuing his B.Tech from JIS college of engineering, Kalyani, Nadia in Electronics and Communication.