

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND
TECHNOLOGY
COLLEGE OF ENGINEERING**



DEPARTMENT OF ELECTRICAL/ELECTRONIC ENGINEERING

DIGITAL COMMUNICATION SYSTEM

GROUP PROJECT

PROJECT: MORSE CODE TRANSLATOR

GROUP (2) MEMBERS

GRAVES-SAMPSON ONESIMUS	-	8237719
OWURA KWAKU OPPONG	-	8244419
SMITH MAWUTOR	-	8241919
CARLIN EWURA ABENA FORSON	-	8236419
ISSAH HAKEEM	-	8238719
ELLIOT KOOMSON	-	8239719
MAAME YAA T. NTIM KWAKYE	-	8243019
WAJA STEPHEN	-	8247519
TERRAH SANGO	-	8246319
LAMBON BASHIRU	-	8240619
OWUSU-OFORI KWESI	-	8245519

WHAT IS MORSE CODE?

Morse code is a method used in telecommunication to encode text characters as standardized sequences of two different signal durations, called dots and dashes, or dits and dahs. Morse code was invented by Samuel Morse during the 1830s for electrical telegraphy.

Morse Code Sheet

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

A ·—	N —·	1 ·— — — —	? ·· — — ··
B —···	O — — —	2 ·· — — —	! — ·· — ·· —
C —· —·	P —· — — ·	3 ·· — — —	· — ·· — — —
D —··	Q — — — —	4 ·· — —	, — — ·· — — —
E ·	R —· — ·	5 ·· — ··	; — ·· — — ··
F ·· —·	S ·· —	6 — ·· — ··	: — — — — ··
G — — ·	T —	7 — — — ··	+ — ·· — ··
H ·· — ··	U ·· —	8 — — — ··	- — — ·· — —
I ··	V ·· — —	9 — — — — ·	/ — ·· — ··
J · — — —	W · — — —	0 — — — — —	= — ·· — —
K — — —	X — ·· — —		
L —· — ··	Y — · — — —		
M — — —	Z — — — ··		

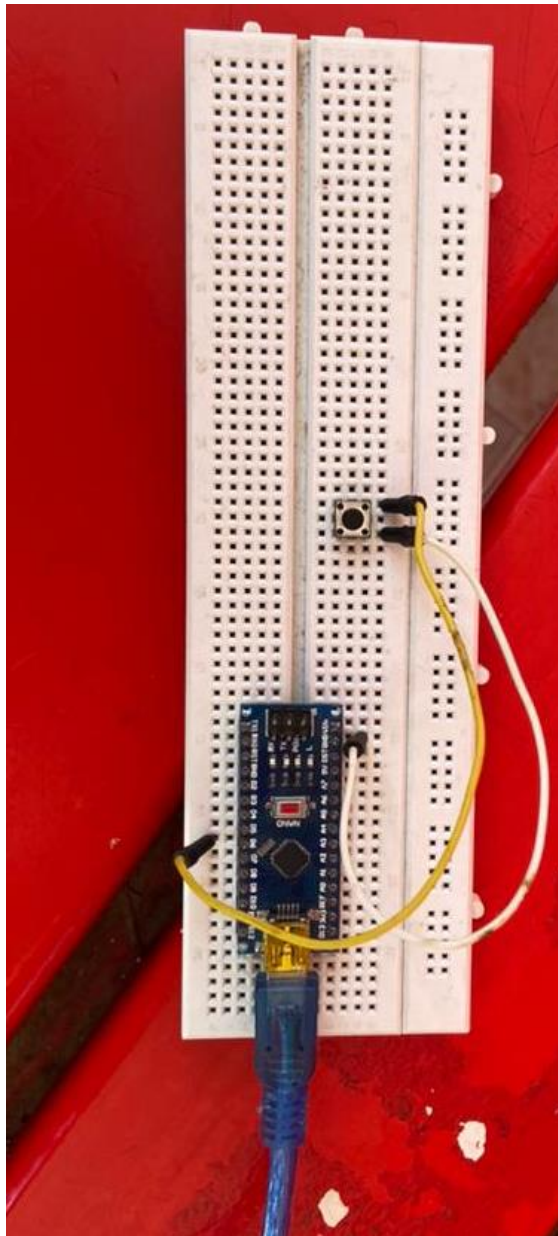
THE MORSE CODE TRANSLATOR

It consists of the **generator** and the **translator**

The Morse code generator

It is made with the Arduino kit. The generator consists of;

- The Arduino nano-board
- Bread board
- Jumper wires
- Push button



The Morse code Translator

There is a simple application developed with MATLAB/Guide. It simply listens on a specific serial communication port for incoming data sent by the Arduino.

This is the source for both the generator and the translator.

https://drive.google.com/file/d/1-NEiYseRAZs3o9_2V_2Gei7k6VOFebbn/view?usp=drivesdk

HOW IT WORKS

To start with, the **generator** is used to produce a sequence of specific Morse codes via short(dots) and long(dashes) beeps. The dot lasts for about 300 milliseconds, while any beep longer than that is considered a dash. This is done with the pressing of the push button. Therefore, the time duration of the press determines if it's a dot or a dash. The time duration is measured via the loop function. Then, they are stored in the buffer. After a long time since the last push, the sequence in the buffer is compared to the known Morse code. It moves to the next stage.

The Morse code and its index are both transmitted to the **translator** through the serial communication port. The translator simply uses its index to get the actual character or symbol. Both the Morse code and its character are displayed in their respective text field.