Morse Mania

**INTRODUCTION**

Have you ever tried to encrypt or decrypt some code? Try decoding this:

.--. .-. .- ... - ..- - ..

A great challenge, right??

Morse code is a method of transmitting text information as a series of on-off tones, lights, or clicks that can be directly understood by a skilled listener or observer without special equipment. In 1836, Samuel Morse demonstrated the ability of a telegraph system to transmit information over wires. The information was sent as a series of electrical signals. Short signals are referred to as dits (represented as dots). Long signals are referred to as dahs (represented as dashes). With the advent of radio communications, an international version of Morse code became widely used.

**EVENT**

*PRASTUTI’ 15* introduces a new event to appreciate the importance of this code. The challenge would be to develop their own Telegram Machine working on the principle of MORSE CODE and wireless communications. This machine would include two modules, one for sending message in Morse Code and other for receiving the signals and displaying it in the form of Morse Code on LCD Display.

**PROBLEM STATEMENT**

* One participant from each team would be provided with a “Secret Message” on Sending End. This member has to send the message to other team members sitting on the Receiving End.
* Communication between two ends should be done using IR LEDs and TSOP Sensors.
* Sending End should have manual system to send Dots, Dashes and Spaces.
* Receiving End should have a LCD to display deceived signal.
* Remaining team members have to decode the received signals.
* Teams decoding the message correctly with minimum time would be declared as winner.

**SPECIFICATIONS**

To implement the above using infrared LEDs and a microcontroller, one needs to control the length of the IR pulses generated by a microcontroller. The native frequency of the IR must be 38KHz (achieved using timers/internal interrupts available on a microcontroller), and this beam should be turned on and off for certain specific durations like on for 100ms for a dot, on for 300ms for a dash, off for 100ms for a gap between consecutive dots/dashes, off for 300ms for a gap between letters and off for 700ms for a gap between words. These values are just indicative and might be optimized for better performance. External switches can correspond to dots, dashes, gaps, and the microcontroller can transmit IR beams with precise durations, as determined by the switch pressed. For example, a button corresponding to a dash might send a 300ms long pulse.

**RULES**

* Team strength should not exceed four.
* Participants have to use INTERNATIONAL MORSE CODE only during the event.
* Only basic ICs (4xxx and 7xxx) and 8-bit microcontrollers are allowed. Use of any other IC should be intimated to us and verified.
* During the event, participants cannot use their mobile phones.
* Using unfair means would result in disqualification of the team.
* Judges decision shall be final and binding on all. The organizers reserve the rights to change any or all of the above rules as they deem fit. Change in rules, if any will be highlighted on the website and notified to the registered participants

**CONTACTS**

Mehul Singh Rathore

+91-8563861650

[mehul.srathore.eee12@iitbhu.ac.in](mailto:mehul.srathore.eee12@iitbhu.ac.in)

Prash Goel

+91-8601140280

[prash.goel.eee12@iitbhu.ac.in](mailto:Prash.goel.eee12@iitbhu.ac.in)

Shubham Jaiswal

+91-8765187624

[shubham.bjaiswal.eee12@itbhu.ac.in](mailto:shubham.bjaiswal.eee12@itbhu.ac.in)