



NARNARAYAN SHASTRI INSTITUTE OF TECHNOLOGY

(Department of Electronics & Communication)

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Project Title:-

Wireless Function Generator using 2.4GHz RF-Link and MATLAB

Abstract:-

Industries are spending lots of money behind measuring devices. However it is required to generate waves of different frequencies like sine, cosine, triangular, ramp, rectangular and many more types of signals. In addition with that in some applications engineers require variable amplitude and a huge frequency range.

Naturally buying function generator for the same, which is costly, full of maintenance, more power consumption and more space consumption. But in this project, our try is to transfer all the hardware into software.

There are various controls provided to generate different waveforms at different amplitudes and frequencies through MATLAB. This function generator is powered by an Arduino.

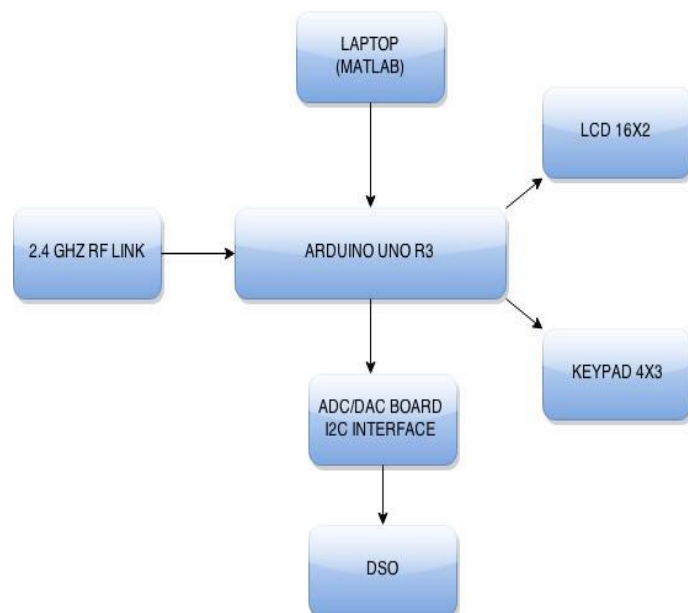
It outputs these waveshapes: sine, cosine, triangular, impulse, rectangular, square, ramp and sawtooth.

Amplitude - Variable from 0.1 V to 5 V

DC Offset - Variable from -5 V to +5 V

Frequency - Variable from 1 Hz to 50 kHz

Block /Circuit Diagram:-



Major Hardware components used:-

- Arduino UNO R3
- ADC/DAC Board I2C Interface
- 3 Pin Serial LCD 16x2
- 4x3 Matrix Keypad
- 2.4 GHz RF-Link

Software used:-

Arduino, X-CTU, MATLAB

Project Application:-

- Used as a signal source to test amplifiers or to introduce an error signal into a control loop.
- Used in the development, test and repair of electronic equipment.
- Response testing using square waves, pulses and noise.
- Provide the driving signal for the development of loudspeakers.

Approx. Project Cost:- Rs.3000/-

Project Photo:-

