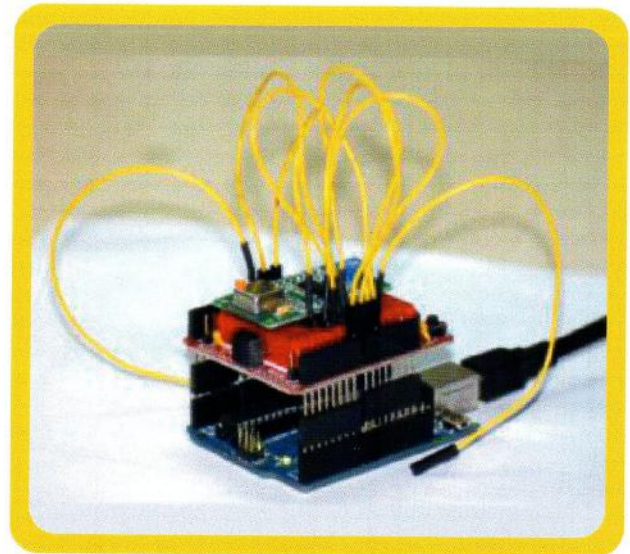


DDS(Direct Digital Synthesizer) using Arduino

Features

- ▲ DDS – frequency synthesizer for generating arbitrary waveforms from a single, fixed frequency implemented on the Arduino hardware platform
- ▲ 125 MHz reference clock
- ▲ Max. frequency that can be generated: 40 MHz
- ▲ 32-bit frequency tuning word, output tuning resolution :0.0291Hz



Hardware

- ▲ Arduino UNO board based on the 8-bit ATmega328 microcontroller working at 16 MHz
- ▲ DDS module based on the AD9850 chip which has a high speed DAC and a comparator
- ▲ Prototype shield for mounting the DDS module on the Arduino board

Firmware

- ▲ Based on the Arduino programming language
- ▲ Word load clock pin, Frequency update pin, Serial data load pin declared as digital output pins. Toggle function implemented to toggle any of these pins.
- ▲ Calculation of 32-bit frequency word to be loaded as per the desired frequency output and the reference frequency clock done in code