SRI RAMAKRISHNA INSTITUTE OF TECHNOLOGY
(Affiliated to Anna University, Chennai)

LABVIEW INTERFACED ARDUINO FOR CONVERTER CONTROL OF THREE PHASE INDUCTION MOTOR

AUSTIN.V.M   (713813105303)

GHAYATHRI.T   (713813105007)

SANTHOSH.R   (713813105312)

SARANYA.M   (713813105029)

B.E., ELECTRICAL AND ELECTRONICS ENGINEERING

SUPERVISOR: Dr.M.MOHAMED IQBAL, AP(SL)/EEE

SYNOPSIS

Z-Source Inverter have recently been investigated and observed as an alternative for the traditional inverters. The Z-Source Inverter uses LC impedance network to couple the main inverter circuit to the power source, which provides the boosting or bucking of input voltage that is not possible in traditional voltage-source (voltage-fed) inverter (VSI) and current-source (current fed) inverter (CSI). By controlling the shoot-through duty cycle, the Z-source can produce any desired output ac voltage, even greater than the line voltage. By controlling shoot-through duty cycle, which is forbidden in traditional voltage source inverter, the DC input can be boosted or decreased and the desired AC output can be obtained.

In this project, Z-Source Inverter has been designed for a three phase load to be driven by a solar PV source with 100V. The simulation model of Z-Source Inverter is developed using MATLAB software with designed inductance and capacitance values and the output is verified. In order to demonstrate the converter control using LabVIEW interfaced Arduino (LIFA) for driving the MOSFET switches, an attempt has been made to design the DC-DC boost converter and the hardware module is demonstrated. The simulation results of DC-DC boost converter and the output of the hardware module of DC-DC module for the 200 V, fractional HP three phase

induction motor with Variable Frequency Drive (VFD) have been verified. The LIFA concept proposed in this project can be applied to the converter control of any industrial drives.