**Objective:**
Develop a Z-Source inverter for residential photovoltaic system.

**System Configuration:**

![Diagram of Z-Source Inverter](image)

**Features:**
- To realize inversion, boost, and maximum power tracking in a single stage;
- Minimized number of switching devices;
- Needs no dead time;
- Can have shoot through state in the inverter.

**10 kW Z-Source Prototype:**

![Prototype Image]

**Experiment Results:**

- $V_{C1}$ (100 V/div)
- $V_{PV}$ (100 V/div)

**Z-Source Capacitor Voltage & Input Voltage**

- $V_2$ (100 V/div)
- $i_2$ (50 A/div)

**Output Voltage & Load Current**

$V_{PV} = 230$ V (With shoot through)

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