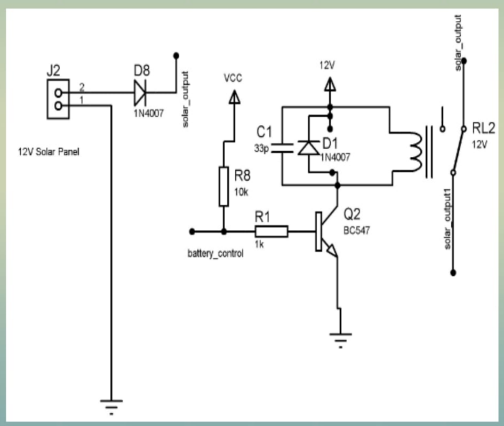
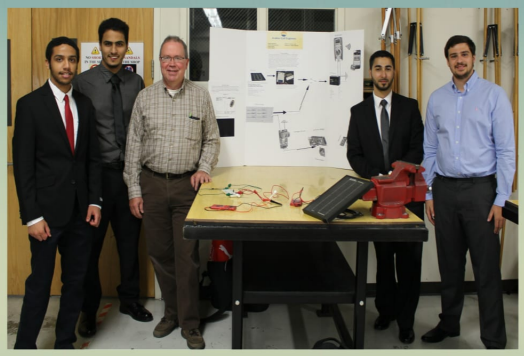
Solar Piezoelectric System

Solar

Solar panels are devices that convert light into electricity



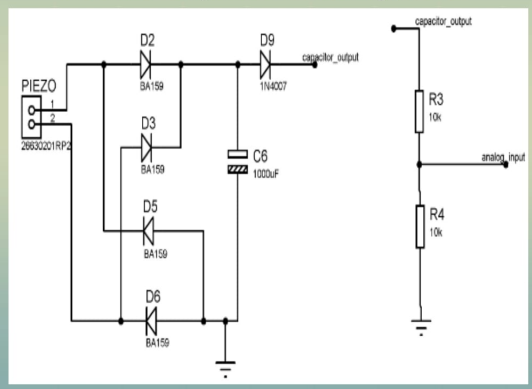


Team members:
Yasser Alwokayan
Hamzah Alabdulwahed
Bader Alsader
Yousef Alqallaf

Advisors:
Dr. Herbert Hess
Dr. Feng Li

Piezoelectric

Piezoelectricity is the ability of certain materials to generate an AC (alternating current) voltage when subjected to mechanical stress or vibration, or to vibrate when subjected to an AC voltage, or both

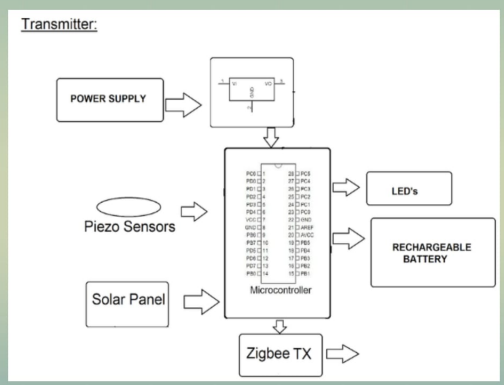


Problem Statement

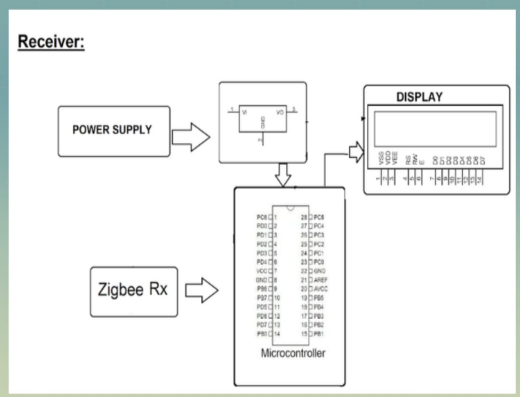
The Solar & Piezo Dual Charging project aims at charging a 12VDC Battery with the help of a Solar Panel and few piezoelectric transducers. With the help of Solar energy and footsteps on the transducer energy can be generated to charge the battery. The system smartly switches between these two energy sources and lets the battery to charge through the source which would provide adequate amount of power to charge the battery at any instant. A relay is used for the switching purpose. This power generating board is connected through wireless communication using zigbee protocol to transfer charging information to an another board that would monitor the process of charging. This board will have an LCD that will display the information related to charging to the user who wishes to monitor the charging process. Both side boards will have an Atmega family microcontroller for controlling purposes

Prototype

Communication



The data is received by the Zigbee and then it sends it to the LCD to be displayed



The microcontroller reads the measurement form the capacitor and the battery. Then it will send it to the receiver side

Storage (Battery Specifications)

Brand	ExpertPower
Model	EXP1270
Item Weight	3.2 pounds
Product Dimensions	5.9 x 2.5 x 3.7 inches
Item model number	EXP1270
Manufacturer Part Number	EXP1270
Folding	No
Amperage	7 A
Voltage	12 volts