

SMART WIRELESS VEHICLE CHARGER ENABLE BASED ON VEHICLE PRESENCE USING AI

AIM:

Design and development of Smart wireless vehicle charger enable based on vehicle presence Using AI.

PURPOSE:

Number of electrical vehicle charging stations increased significantly. Type of charges is based on cable and need manual intervention to charge vehicle. These type of chargers are traditional and don't have any additional features except charging. Artificial intelligent plays major role in every sector and it eliminates manual presence. We can add artificial intelligent based charger that enables charger when it detects vehicle through the camera. This type of EV chargers is not existed anywhere. The proposed project title is smart wireless vehicle charger enable based on vehicle presence using AI.

DESCRIPTION:

There are two sections in this project. Wireless power transmitter is transmitter and it will transmit power. ESP32 cam interfaced with Arduino through serial port. Arduino enables wireless power transmitter through relay. Relay interfaced with Arduino digital pin. Other section is Electric vehicle, which has wireless power receiver module. Wireless power receiver connected to charger through voltage booster to charge battery.

WORKING:

ESP32 camera installed at wireless power transmitter side. When electric vehicle comes near to charger then camera detects vehicle presence and send signal to Arduino. Arduino sends signal to relay to switch ON wireless power transmitter. Electric vehicle has power receiver coil, which is fixed at bottom of electric vehicle. Then it will charge battery, when vehicle came out of charger then camera

detects electric vehicle absence and switch off transmitter. Camera detects vehicle based on machine learning and classification algorithms.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16x2 LCD display
Copper coil	:	25 gauge
MOSFET	:	IRFZ44
AI Camera	:	ESP32 CAM
Battery	:	12V DC
Power Source	:	12V 1 amp DC battery, transformer

SOFTWARE:

Arduino IDE

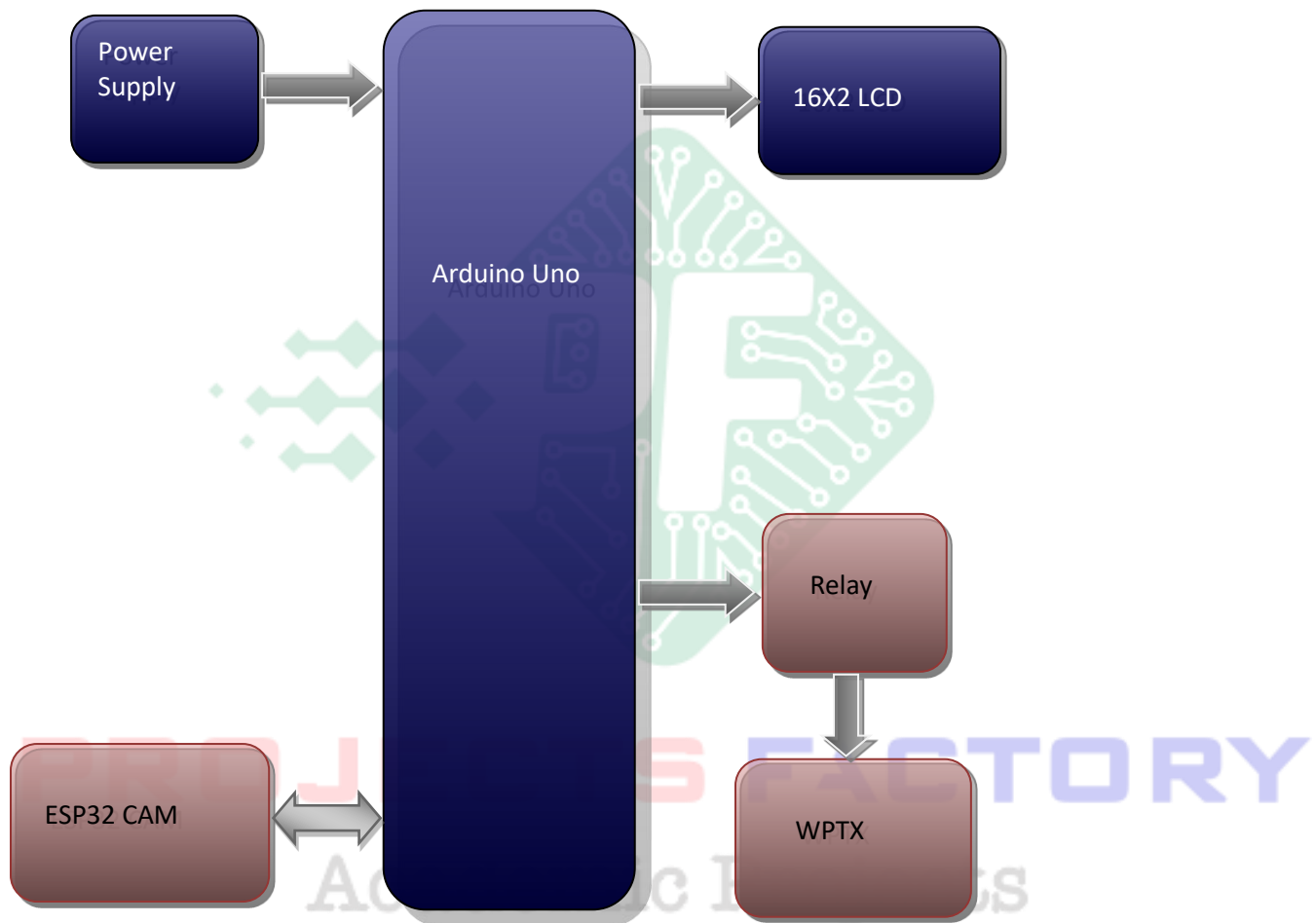
Proteus based circuit diagram

APPLICATIONS:

- AI based Wireless power transfer
- Electric vehicle smart chargers
- Wireless battery charging stations
- Arduino based wireless chargers

BLOCK DIAGRAM:

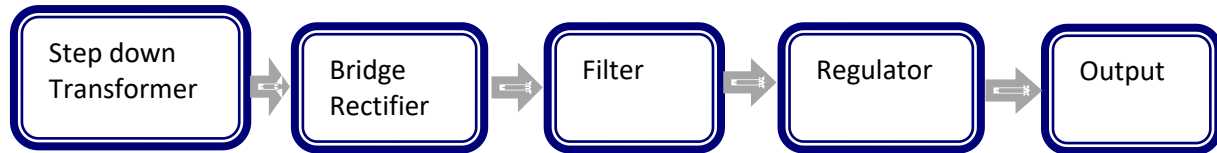
Transmitter:



Receiver/Vehicle:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERED:

- We have covered Arduino interface and programming
- Wireless power transfer module and battery charger

PROJECTS FACTORY
Academic Projects