SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF MECHATRONICS

19MCB302 – INDUSTRIAL ELECTRONICS & APPLICATIONS

III YEAR V SEM

UNIT 1 – PHASE CONTROLLED CONVERTER

TOPIC –Battery Charging Circuit

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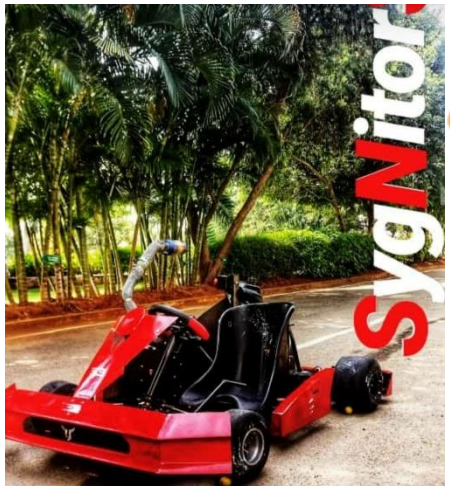
Empathy Collection

Empathy	Source
• Frequent Maintenance of IC Engine • More Vibration • Create Messy Environment due to oil leakage • Increase in cost of refilling. • Improper fuel supply. • **Failure in Battery Charger.**	Mr.Prince Roy, Caption-Go-Kart 2017-18, (NKRC-2)
	Mr.Dharshan, Power Train Team- Go-Kart 2017-18, (NKRC-2)
	Mr.R.Suseendran, Driver- Go-Kart 2018-19, (NKRC-3)
	Mr.A.Vijayakrihnsraj, Electrical Team- E-Kart 2017-18, (E-NKRC-1)



APPLICATION

Battery

+

Charger

How its Work without wire……?

Types of Charger

Battery charging Circuit

Design of Battery Charging Circuit

TABLE 2: BATTERY VOLTAGES AND ENERGY CAPACITIES		
Battery type	Nominal voltage (V)	Amp/hour (mAh)
Alkaline long-life	1.5	2122
Zinc-carbon	1.5	591
Nickel-cadmium	1.2	1000
Nickel-metal-hydride	1.2	2100
Lithium-ion	3.6	853

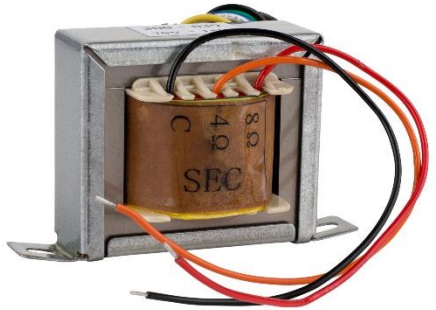
SO OUR TARGETED OUTPUT

- 1.2 to 3.6V
- DC Output
- Constant output

Design of Battery Charging Circuit

We Want	**1.2 to 3.6 V**	**DC Current**	**Constant Voltage**
We Have	TNEB Single phase Voltage = 230 V	AC Supply	Fluctuating Voltage

Design of Battery Charging Circuit



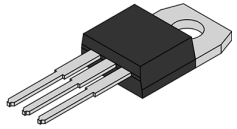
<u>For Voltage reduction</u>

Step down transformer– Used to convert the 230 V AC into 15V AC

<u>For AC-DC Conversion</u>

Bridge rectifier – Used to convert the 15 V AC into 15V DC

Design of Battery Charging Circuit



7812 - 12V
VOLTAGE REGULATOR

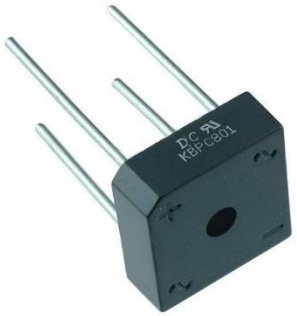
For Constant Voltage

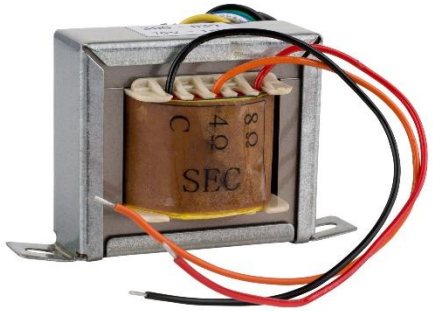
IC7805– Regulate the constant voltage to the battery

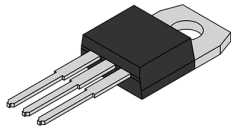
For Indication

LED– Used to Indicate the circuit ON state

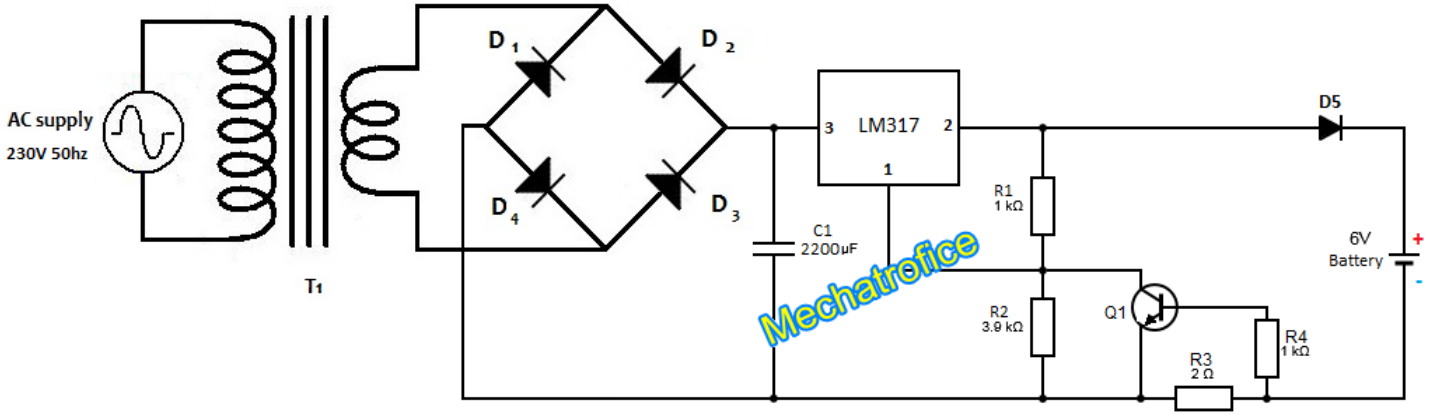
Design of Battery Charging Circuit



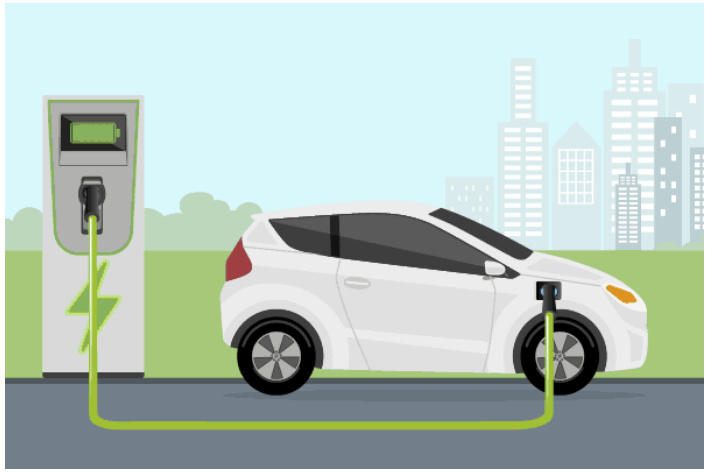




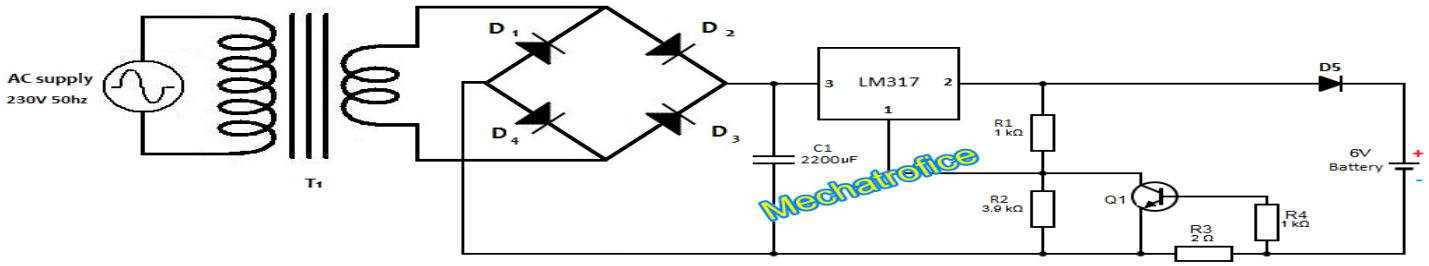
7812 - 12V
VOLTAGE REGULATOR



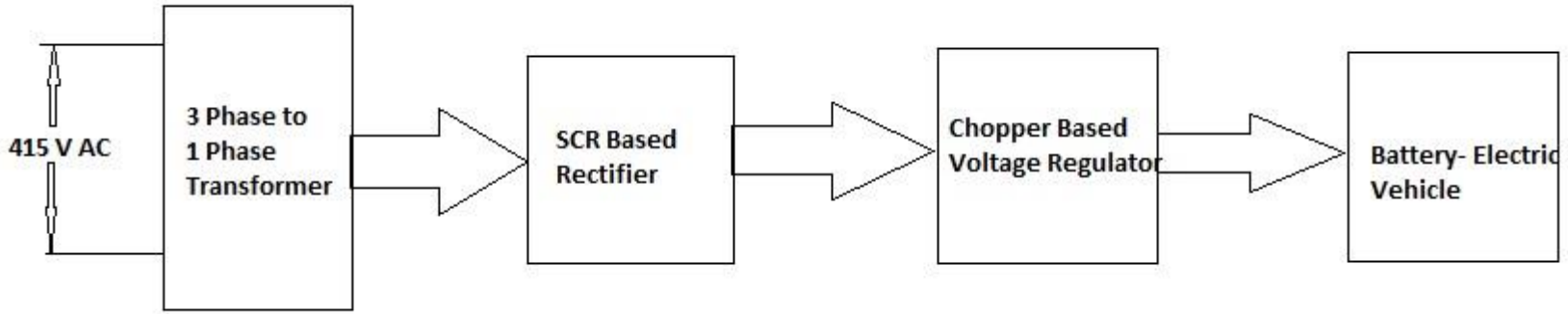
Similarly…..



In BCC



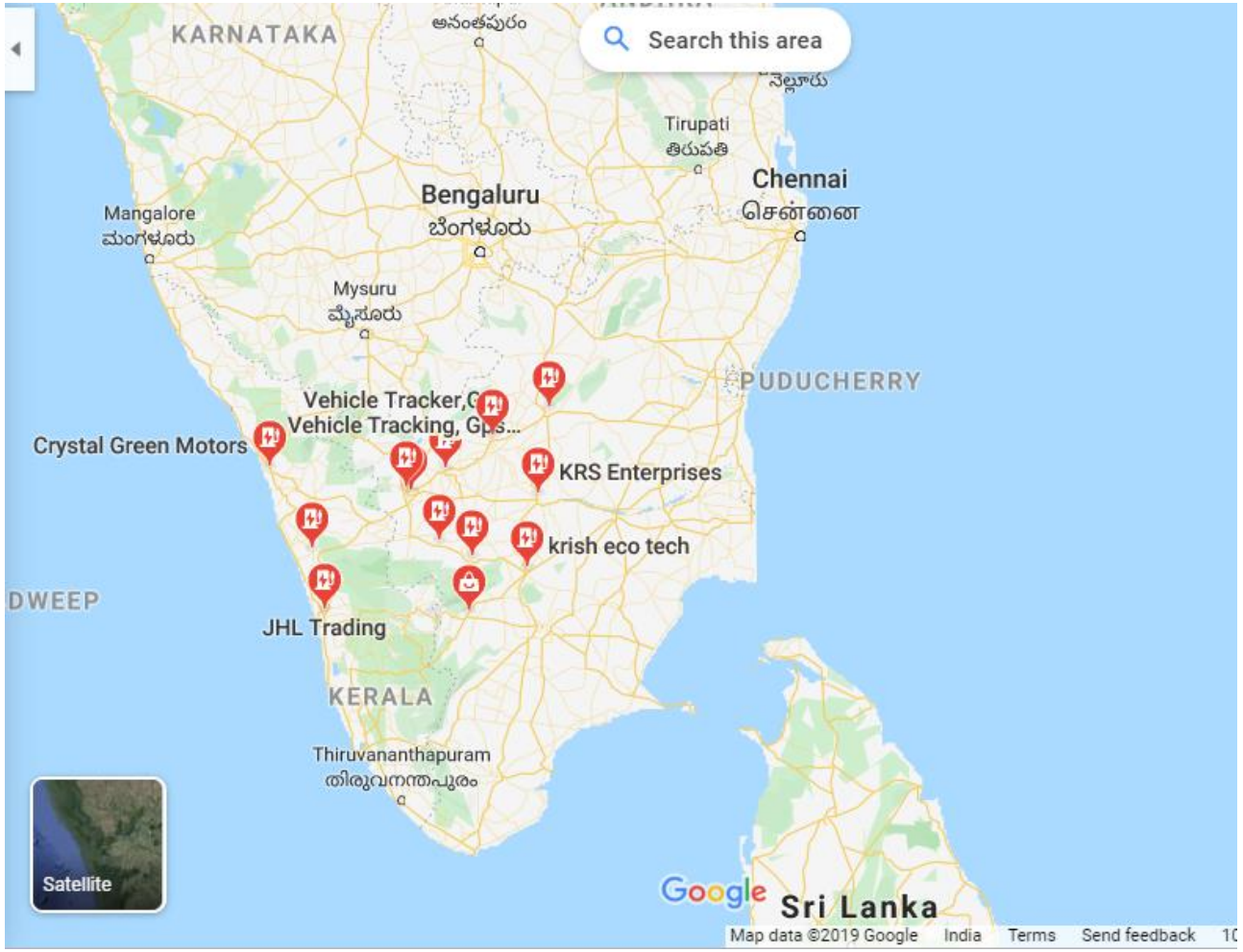
In EV



Reason for Failure of Battery Charger in E-Kart

Rectification Unit

EV Battery Charging Station in South India



References

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