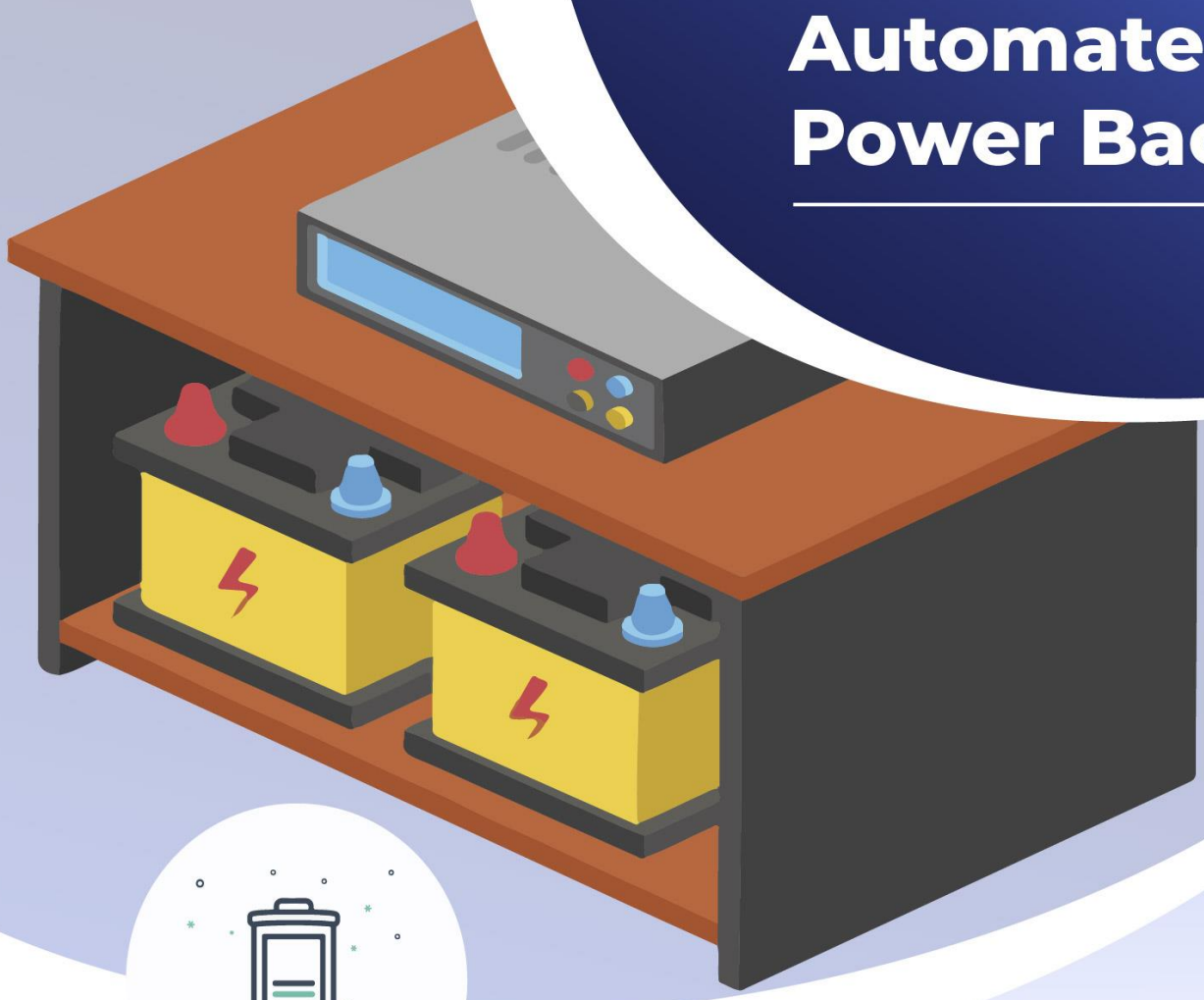
Automated Power Backup



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ENTC 2020 Group 15

Need for the product

Government-imposed power cuts that have been occurring in Sri Lanka since January is the worst power outages in over 25 years. The current crisis in our country forced companies and students to continue with the work-from-home policy to reduce the cost of travelling and for the continuity of the work. That means our home's Wi-Fi networks are more dependent than ever.

With ongoing power cuts, online teaching and learning are now severely affected. Parents and teachers said the power crisis, coming on top of the pandemic, has affected students physically and mentally. Anyone with a Wi-Fi connection knows their Wi-Fi will turn off whenever the power cuts happen. It annoys us when there is an interruption due to power cuts while we are in an online lecture, webinar or meeting.

Objectives of the design

Our device can be used to give power back up for 5v, 12v Wi-Fi routers. The main objective of the device is to give continuous power supply to Wi-Fi routers by changing AC power to DC power automatically. Our device will show the remaining battery percentage of the power backup. The design can be upgraded to give power to emergency lamps, and it can be used to charge mobile phones as well.

Solution for the problem

The Wi-Fi network interruption due to power cuts can be solved by many solutions. But they cost much and because of that many people can't afford those. Therefore, our main aim is to build an automated power backup for Wi-Fi router which can be afford by students. As it changes from AC power to DC power automatically our important meeting, online lecture, or webinar won't get disconnect. The design also indicates remaining battery power it'll be easy for the users to utilize the remaining power of the product efficiently. Because of the 5V output from the device we can recharge the 5V input devices (mobile phones) and it can be used to power the emergency lamps as well.

Working method

The Wi-Fi power backup will be connected to AC power supply. And the Wi-Fi router will be connected to the backup device. Whenever there's no power interruption Wi-Fi router will work as on AC power. And during that time, the power backup will get recharge.

During any power interruptions, the connection to the Wi-Fi router from the power backup will be automatically changes to DC power supply from the power stored in the backup device. By this, we can avoid sudden power disconnection of the Wi-Fi router and we can have a continuous power to the Wi-Fi router.