# Better-y Care - Automated Laptop Charge Monitor

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A software that monitors the battery stats of a laptop. It also automatically controls the switch of the power plug for charging the laptop battery.

## Inspiration

I often work on problems related to **computer vision and deep learning**. It means that I need to train deep learning models on our own dataset. Training a model requires **hours of time**, sometimes even more than a day. So I need to constantly keep an eye on our **laptop's battery percentage**. If the battery is too low, it will switch off and I will lose hours of progress. So I decided to **automate this process of switching ON or OFF** the power plug depending on the battery percentage.

## What it does

The system consists of both software and hardware part.

The **software** part is the GUI which collects details of the laptop battery using the 'imutils' package. It then displays the battery percentage, time left on current battery percentage, and whether the power is plugged in or not.

The **hardware** part is responsible for switching ON or OFF the power plug. It receives the signal from the Python program through **serial communication**. Due to non-availability of relay module at the moment, I used a servo motor forturning the switch ON and OFF. Depending on the battery percentage, the swich can be turned ON or OFF.

If the battery is less than 15% , the software would send a signal through serial communication to switch 'ON' the power plug. Once the battery power percentage reaches more than 95%, it would send a signal to the arduino board to turn off the power plug.

## How we built it

I used an Arduino UNO and a servo motor for controlling the power plug's power as ON or OFF. The python code displays the **Battery percentage, time left on battery percentage and whether the power plug is switched ON or OFF**. I used serial communication protocol for communicating between the Python program and the Arduino UNO board.

## Accomplishments that we're proud of

The system works perfectly and we are proud of it. I have thoroughly tested it.

## What we learned

I learned to use the QT designer by working on this project.

## What's next for Better-y Care - Automated Laptop Charge Monitor

I plan to make several changes to the next prototype. I will replace the servo motor with a 5V relay module which would be much suited. Also, I will make a small box to fit in the Arduino board and the relay module with a power plug fixed on top of it.

**Componnents**

1 Arduino UNO

2 Servo Motor

3 Python 3

4 PyQT 5

5 QT Designer

Github Link - <https://github.com/nilutpolkashyap/better-y-care>

Video Link - <https://youtu.be/Gslyyzvvda4>