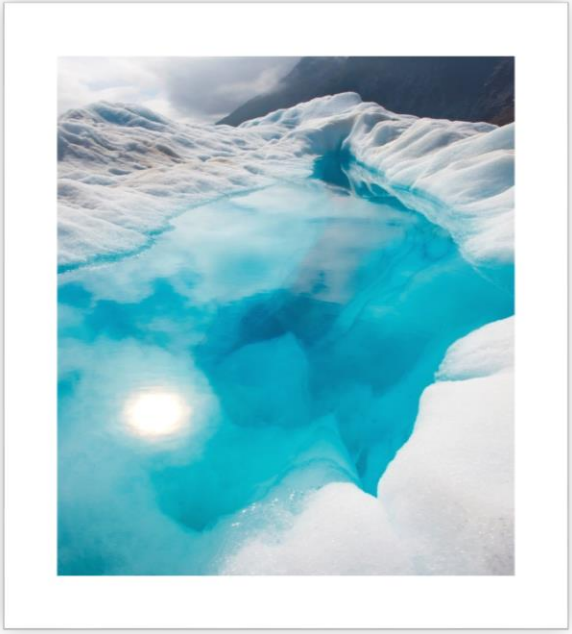

easyCharge

AUTOMATIC START AND STOP CHARGING

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Salient Features:

- Starts Charging when Laptop battery percentage falls below a min threshold.
- Stops charging when Laptop battery percentage is above a max threshold.
- It increases the battery life of Laptop.
- This device is Laptop Independent, i.e., User can connect this device with any Laptop with some initial settings.

Requirements:

- Arduino Mega 2560
- Arduino IDE
- OS: Ubuntu with any editor
- Bluetooth 4.0
- Relay Module
- Laptop with charger
- Breadboard
- Jumper Wires

Description:

First a shell script is written which extracts the battery percentage of laptop and whether the laptop is plugged in or not. If Laptop is plugged in and battery percentage exceeds 90%, this scripts writes message “b” to a file. A python script is written which reads this message from file and then sends the message to Arduino Serial Monitor and then Arduino instructs Relay module to break the circuit and turns off charging.

Similarly, If Laptop is not charging and Battery falls below 20%, then script sends message “a” to Arduino Serial Monitor using python script. Arduino then allows Relay module to turn on charging.

All this while we can leave the power cord connected to the laptop without worrying about the battery at all.

How to Use:

- On Ubuntu Terminal,
  *$ cd /*path where shell script is*/*
  $ chmod +x shell.sh
  $ ./shell.sh
  $ chmod +x pythonscript.py
  $ ./pythonscript.py
  $ env EDITOR=nano crontab –e
  */*add these two scripts path at the end and save it*/*

- Plug the charger of laptop to the point provided on device.

- Connect the device to laptop for power supply.

- Device will automatically allow charging or discharging as per messaged received by shell scripts.

Process of Implementation:

Step 1: Interface Relay Module with an Arduino

Relay		Arduino
RL1	-->>	pin 8
+	-->>	5V
-	-->>	GND

Step 2: Interface Relay Module with Laptop Charger

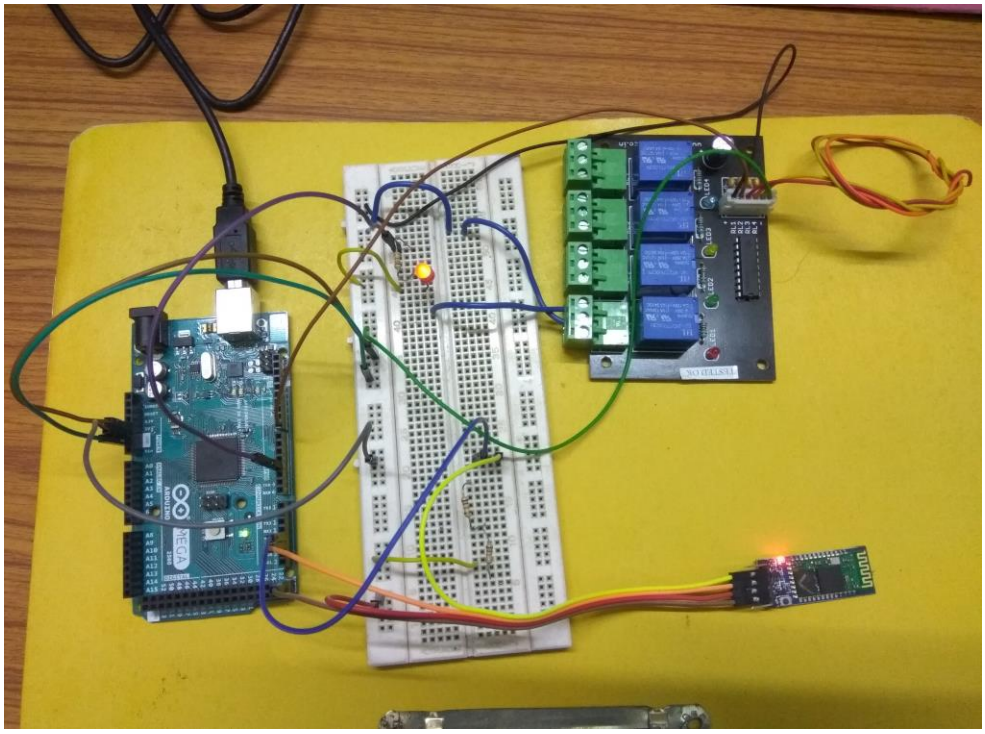
NO pin of Relay Module -->> 5v of Arduino

COM Pin of Relay Module -->> +ve pin of Charger

-ve pin of charger -->> Neutral of Main Power

Step 3: Upload Arduino code to Arduino Mega 2560 using Arduino IDE

Final Circuit Diagram Of the project:



Future Work:

- Android App will be made which will send the battery status to device via Bluetooth. Thus the same device will be used for any mobile/ Laptop with some initial configuration.