

Simultaneous charging of the SEAGLASS sensor

Due to the usability and the permanence of the sensors, one of the LCOs (Local Coordinating Organization) involved in developing the project decided to carry out a series of modifications to the sensor charging system to ensure uninterrupted collection of the data from the sensors. The LCO in question designed three (03) different versions, of which only two (02) were as expected.

1. Simultaneous charging system version 1

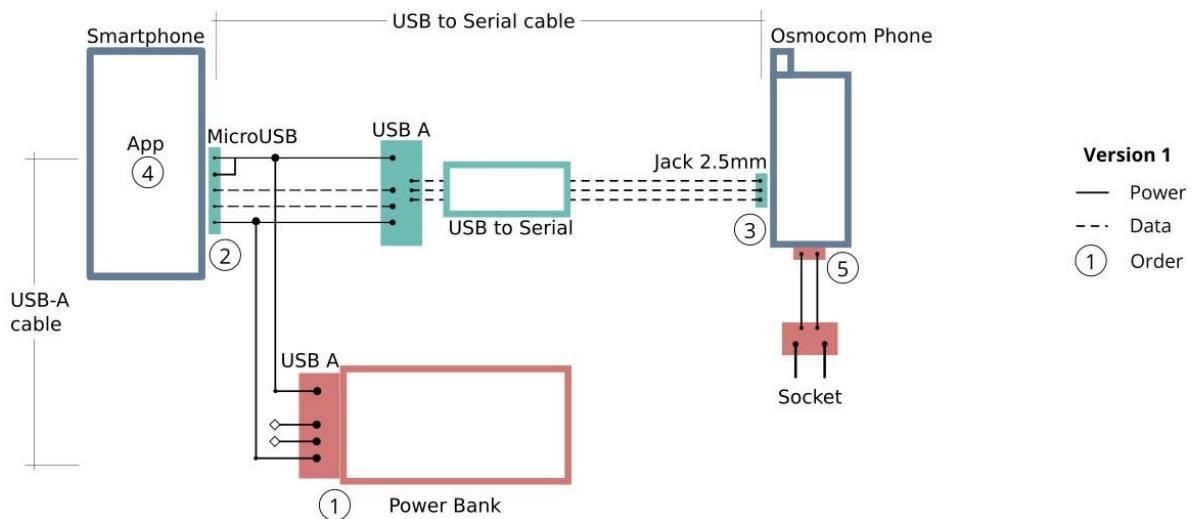


Figure. 1 Prototype version 1

Join the USB serial cable with a traditional USB charging cable to get three (03) ends; this allows you to keep charging (connected to power) both devices, the antenna (conventional telephone-Osmocom) and the smartphone.

To take in consideration: Please follow a specific order for this method to work:

1. Connect the USB-A end of the cable to the power bank.
 2. Connect the micro USB power to the smartphone (Until the loading icon appears).
 3. Connect the antenna (conventional phone-Osmocom) to the smartphone.
 4. Start the SEAGLASS app.
 5. Once the data load has started, connect the antenna (conventional telephone-Osmocom) to the power (socket).
- With the advantage of keeping the sensor always charged, the number of restarts was much less repetitive.
 - It only works with **Motorola C139** antennas (conventional phone-Osmocom).
 - The LCO considers this to be the best option.

2. Simultaneous charging system version 2

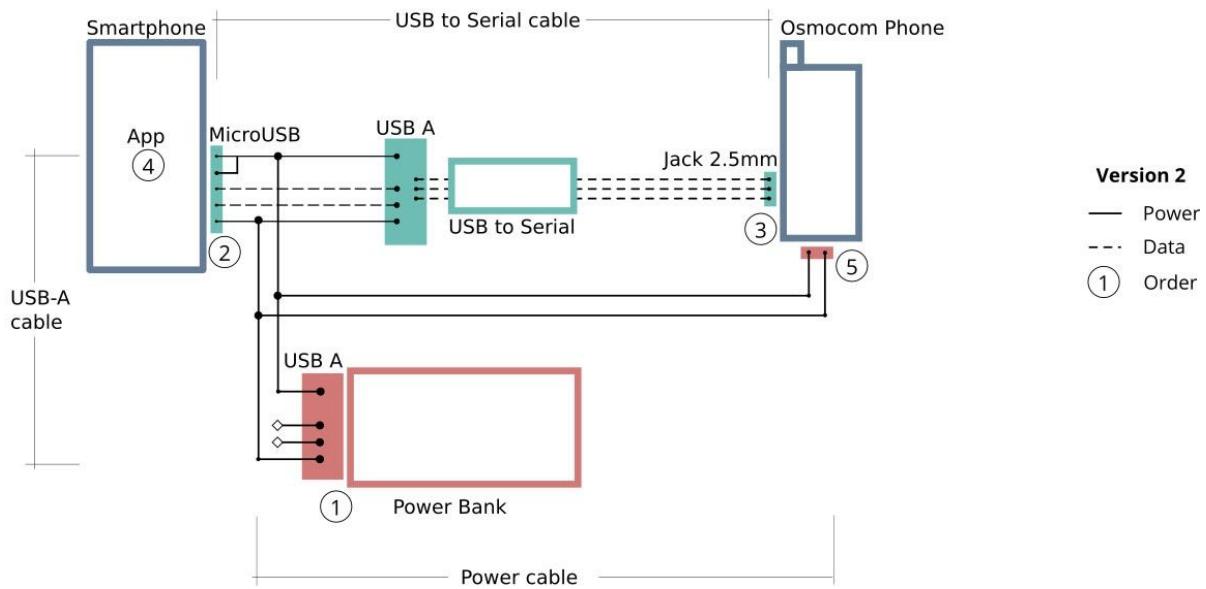


Figure. 2 Prototype version 2

Attach the antenna charging cable (conventional phone-Osmocom) to version 1. In theory, it should work, but in practice, the prototype continually failed.

To take into consideration:

1. The smartphone has a 5V input at 2A, and the antenna (conventional telephone-Osmocom) has a 12V charger at 1A input but output 4.5V at 1A.
 2. This modification uses the smartphone's power adapter giving 5V to 2A.
- In summary, it was not possible to maintain the correct amperage to supply the charge once the sensors were in operation.
 - **Recommendation:** This can be achieved by utilizing a generic adapter that delivers 3 amps. E.g. <https://bit.ly/2VPWPPF>

3. Simultaneous charging system version 3

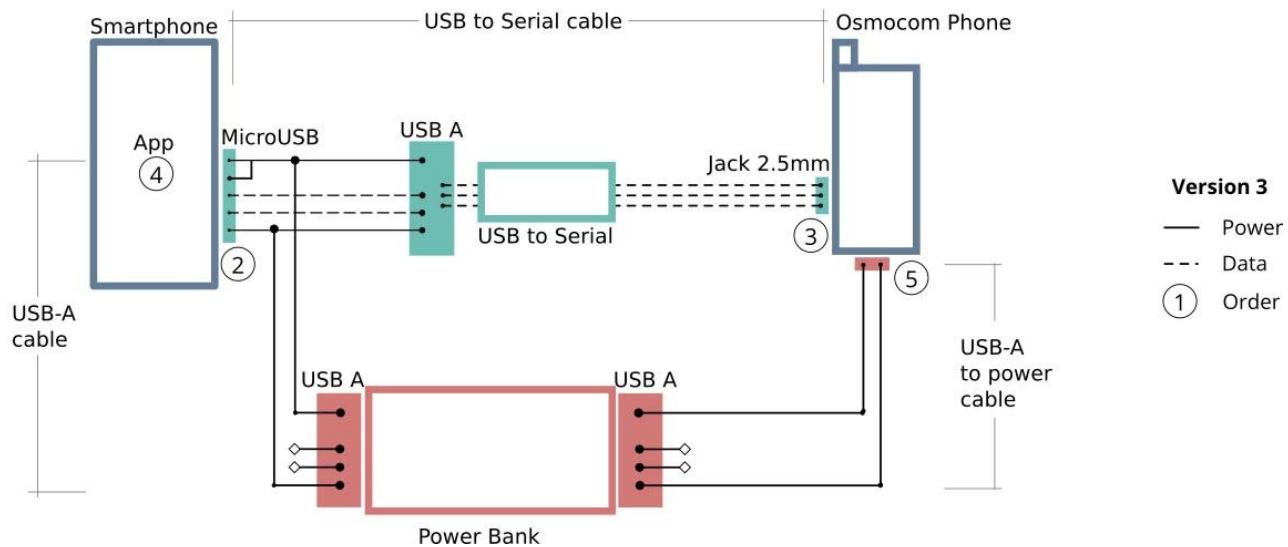


Figure. 3 Prototype version 3

Employ version 1 and consider:

1. Replace the antenna power adapter (conventional phone-Osmocom) with a USB input.
2. Utilize a 20000 mAh power bank with the ability to charge 2 devices simultaneously.
<https://amzn.to/3d1h3eY>

- This version does not offer full autonomy to the sensor. Still, it is handy, mainly for mobilized data collections such as civic protests or even running into cars. It manages to extend continuous data collecting for up to fourteen (14) hours.
- This version can also work correctly with a car adapter.



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