Reducing Power Consumption on Melody 5.0 RC9 and later

I. Introduction

There are several Melody configurations that can be used to reduce power consumption:

- `ENABLE_LEDS`

- `DEEP_SLEEP`

- `ENABLE_SPP_SNIFF`

The use of these configurations is discussed in detail below.

II. Configuring ENABLE_LEDS

By default Melody is configured with LED indications on. Melody uses LEDs to indicate different states as described in the LED Indication sections of the Melody Manual.

However, using the LEDs significantly increases BC127 power usage. If you do not require LED indications, setting `ENABLE_LEDS=OFF` will immediately decrease power usage with no affect on Melody connection or power management settings.

III. Configuring DEEP_SLEEP

Melody can configure the BC127 module to go into Deep Sleep, thereby reducing power consumption when the RF and processor are idle. This feature will reduce power consumption by 75% when Melody is Idle or Idle-Connected. Power usage will be reduced in other states, however, due to the active RF communication this will be less noticeable.

By default Melody is configured with `DEEP_SLEEP=OFF`. This is because while in Deep Sleep the processor needs a short wake-up time when triggered by an external event (such as UART input) before becoming operational. An extra `\r` character is best sent before any command issued while Melody has Deep Sleep enabled, as the first character over UART will be lost.

IV. Configuring ENABLE_SPP_SNIFF

While in an active connected mode with only a Data connection (SPP or iAP), Melody power consumption can be further reduced by changing connection parameters. Please note that this will result in increased latency, and may result in compatibility issues with some device (some devices will not handle the transitions between sniff and active correctly which may lead to adverse behaviour).

By default `ENABLE_SPP_SNIFF` is set to OFF `0 0 0 0 0`

This meant that SPP and iAP connections are always in the active state, latency is minimised at the cost of RF uptime and power usage.

Setting `ENABLE_SPP_SNIFF=ON 0 0 0 0 0` will put Melody in Passive mode. This means that Melody will accept the connection parameters supplied by the remote side.

Changing any of the parameters from 0, when Sniff is ON will result in Melody going into Sniff with Passive mode and will attempt to negotiate the sniff mode parameters supplied. for details on the connection parameters, please refer to the Melody Manual

Enabling Sniff Mode will reduce power consumption; however, we are unable to provide example configurations as those are highly dependent on individual applications.

Please note that if any other profiles (A2DP, HFP, MAP, PBAP, or AVRCP) are connected, the connection setting for those will take precedence and the SPP sniff parameters will not be applied. This is done to ensure connection quality and user experience are not affected for the listed additional profiles.

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