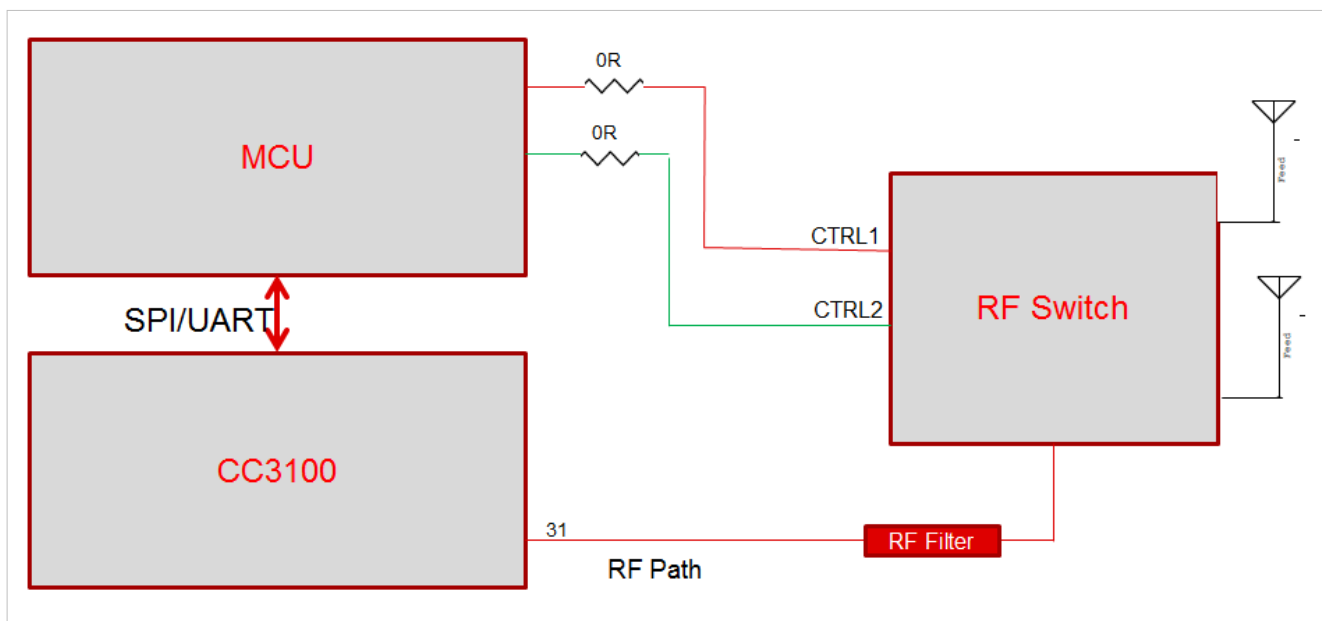# CC3100 Antenna Selection

Overview

This is only a sample application demonstrating how 'antenna-selection' feature can be implemented on the host MCU. Please note below points when implementing this feature on the host MCU.

Limitations/Known Issues

- CC3100 does not support this feature internally.
- In case the application intends to put the host MCU in Lower Power Mode (LPM) while keeping CC3100 connected to the access-point, the state of the IOs that control the RF-Switch shall be retained. Not retaining these IOs will break the RF path for CC3100
- Some MCUs, such as STM32 in STANDBY, do not retain the IO states while in LPM. For implementing antenna-selection feature on such MCUs, external bus-hold circuitry shall be added between IOs and RF Switch to keep the RF path intact for CC3100

Routing of the GPIOs controlling the RF-Switch to host MCU should be as shown below:

Application details

This sample application:

- Uses the host driver APIs to scan and retrieve the signal strength of the configured access-points w/ both the antennas
- Connects to the access-point using the antenna which delivered better signal strength. Either of the antennas is selected by driving the MCU's GPIO controlling the RF switch on the antenna-selection board
- On a 'disconnection' event, it checks for a better antenna again and uses it to establish connection w/ the access-point

Source Files briefly explained

i. main - Initializes the device, configures the antenna selection GPIOs, checks the signal strength of AP (SSID_NAME) w/ both antennas, switches to antenna with better signal strength and connects to the AP
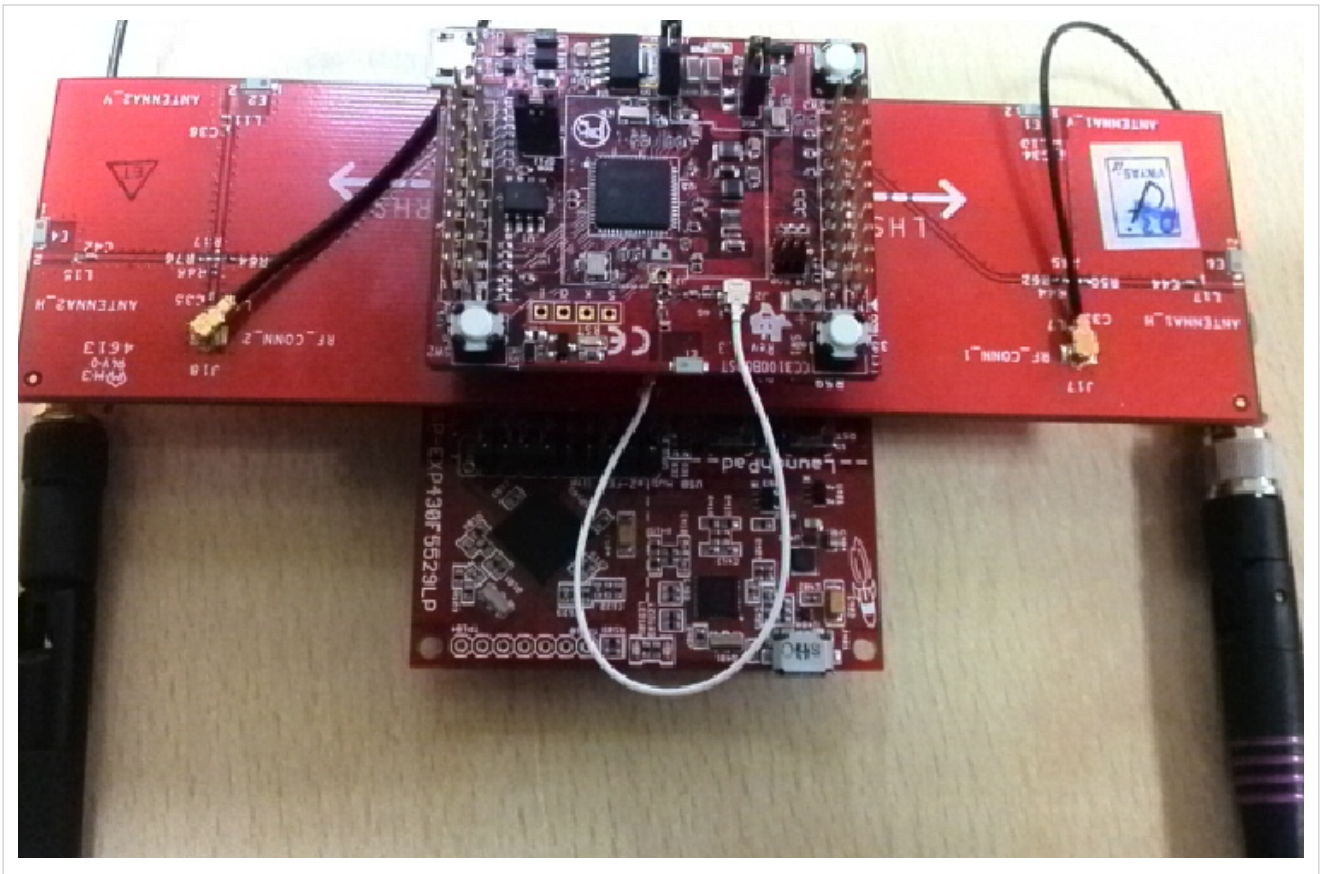
Board Modifications

- Below modifications are to be done on CC3100BOOST-Rev3.3A for working with **antenna_selection** sample application

  1. Unmount R6
  2. Mount R7

Connections Details

Prerequisite: Antenna-selection board is required to test this sample application.

- The antenna-selection board can directly be connected with CC3100BOOST using the 2X20 pin connector
- The stacked setup is as shown below. Ensure that the connectors are oriented correctly before powering up the board

Usage

- Connect the board to PC and configure the terminal program for seeing the logs - Detailed instructions are available at CC3100 & CC3200 Terminal Setting [1]
- Open **sl_common.h** and change **SSID_NAME**, **PASSKEY** and **SEC_TYPE** per your access-point's properties.
- Connect antenna-selection board with CC3100BOOST and host MCU as shown in section: Connections Details
- Build and run the application
- See the self explanatory logs on the terminal-program's console. On success, below message will be displayed on the terminal

References

[1] http://processors.wiki.ti.com/index.php/CC3100_&_CC3200_Terminal_Setting

Article Sources and Contributors

CC3100 Antenna Selection *Source*: http://processors.wiki.ti.com/index.php?oldid=229917 *Contributors*: A0131814, A0132173, A0221015, Codycooke, Malokyle, SarahP

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