SAMANTHA MODULE MOUNTING - BEST PRACTICES

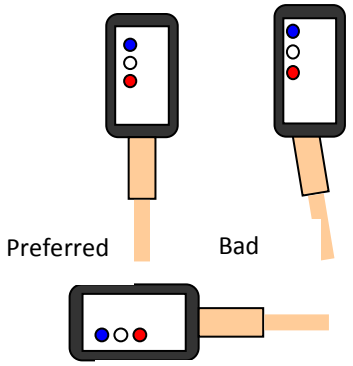
The Samantha module provides a highly reliable WiFi connection between the FTC bot and the Field Control System. However, the integrity of this communication link is dependent on the USB connection between the Samantha module and the NXT brick.

During FTC matches robots are subjected to rapid accelerations and decelerations, jarring impacts, rapid turns, etc. These actions could lead to a strain on the USB connection which in turn could cause the cable to become loose. Loose cables could cause:

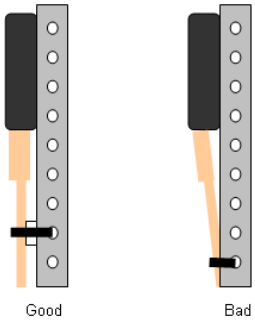
- A loss in communication between the Samantha and the NXT
- A loss of tele-op control for up to 10 seconds while the link is reestablished
- Permanent loss of communication
- The NXT to lock-up

GUIDELINES TO AVOID COMMUNICATION ISSUES

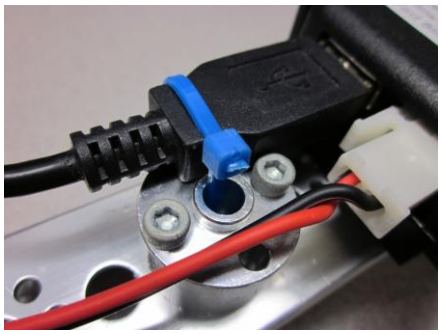
1. Mount the module vertically with the USB port facing downward. The cable should hang down straight with no strain put on it in any direction.
2. Horizontal mounting has the most potential for loosened connections, but this can be mitigated with proper strain relief.



Ok with proper Strain Relief



Add a spacer to keep the cable vertical



The ½" gear hub that is supplied in the TETRIX kit the right size and is a good choice to use as a spacer for proper strain relief.

3. Prevent any relative motion between the NXT and the cable by using zip ties to hold the cable in place. Make sure the NXT is securely mounted as it will tend to shift during rapid robot maneuvers.
4. Use as short a USB cable as possible, usually 12", to eliminate a large mass of cable swinging around your robot and pulling on the connections. After you have coiled the cable make sure to zip tie it securely in several locations to prevent it from shifting during a match.
5. Mount the module as high as possible on your robot. This will improve WiFi reception and make it easier for the refs and FTAs to see the lights, which will help them diagnose any potential communication issues.
6. Do not bury the module behind a mass of metal, like the chassis or large sheets of aluminum. This will create a Faraday cage and prevent the WiFi signals from reaching the module.