Robotics Challenge Code Descriptions

Version March 23, 2018

Receive Code

This sketch finds the heading (degrees) of the transmitting beacon. For example, if the receiver is due west of the beacon, this sketch will return a heading of 270 degrees. This sketch receives a packet and stores the RSSI (signal strength) in the RSSI Array with an index of the Heading (data). It does so 'Samples' amount of times. Then the data is passed through a digital filter. If the RSSI was not evaluated for a specific heading, then that data point is not evaluated. This prevents values that were not measured from affecting the output of the digital filter.

Transmitter Code

XBEE 2.4GHZ Transmitter System For Delivering Location Relative Bearing in Degrees. For HMC compass system.

Transmitter Code (Experimental)

This sketch attempts to minimize the time lag that occurs between the amount of time it take for the beacon to receive a new compass heading and the rate of rotation of the beacon. It takes the previous compass reading with the current one and finds the average difference on a scale of 4. The beacon then transmits the current compass heading followed by “dummy” compass headings which is the current heading incremented by the average until the heading is updated with the new compass reading.

Signal Test

This is useful in debugging the beacon and the receiver. It will output every heading and RSSI level that the it receives.