RSA Lab #6: RF Transceivers

# Part A: What’s the Frequency, Kenneth?

For this part I was able to make a program to send signals using an RFM69HCW radio frequency transceiver to transmit a series of bytes to be received by another RF transceiver at a specified frequency.

1. Draw a wiring diagram showing how to hook up the RF transceiver to the Arduino. Submit a clearly drawn sketch. Label the appropriate pins on the Arduino and the transceiver.
2. Make a program that will allow you to choose a single-byte integer and transmit that to the instructor’s transceiver. Have one button that will increment the number, so you can choose the number to send. Have a second number that will transmit that number, once you have chosen it. Submit your commented code, and a screen shot of a few seconds of SerialMonitor output, showing the number incremented, and then transmitted.

Text

Description automatically generated with low confidence

Serial Monitor:

(Button was pressed until four was obtained, then pressed again to get five, then sent to the transmitter)

Background pattern

Description automatically generated with low confidence

# Part B: SPI Clock Signal

In this section of the lab, I measured the SCK signal from the transmitter by connecting it to an oscilloscope.

1. Use your oscilloscope to measure the SPI SCK clock signal. Submit a screen shot of the signal on the oscilloscope. Annotate the plot, showing the period of the signal. Calculate the frequency of the signal.

See attached scope. The frequency calculated is 500 KHz.