Preparing Data:

Our protocol allows 32 bits to be sent at a time as hexadecimal values. Each byte is converted into its hexadecimal value (spaces are represented by the hex value 20 and take up one byte of space).

The whiteboard is split into 8 blocks (4 across the top and 4 on the bottom). Every 2 consecutive blocks represent a hexadecimal value.

Changing Frames:

The first frame is shown by a black dot in the top right of the whiteboard. When the transmission of the first frame has been sent, you will erase the data in the blocks, rotate the whiteboard so the black dot is now in the bottom left and fill in new data to be sent. When the receiver sees the dot has rotated, they will know a new frame of the same data set is sending.

When you have completed sending data, flip the board and show the receiver the back side of the board. This is to show that the data set you have been sending has finished and that you are either done, or data from a different data set is about to be sent.

Clock:

Within every 45 second window the receiver should see a new frame of data. At the end of the first 45 seconds, the board should be taken down and either erased and replaced with new data, or have the back held up to signify to the receiver whether they are receiving new data or if it has finished being sent.

Signaling data has been received:

When the receiver has finished processing the frame, they will send an acknowledgement showing either that they successfully received the data or that they need it retransmitted. Visually, a positive acknowledgement will be shown by a thumbs up and a negative acknowledgement will be shown as an X with their arms.

Example Data to send:

- 11111111 11111111 11111111
- 00001111

1.Board:

F	F	2	0
F	F	2	0

2.Rotate:

F	F		

3.Flip

1.Board:

0	F		

2.Flip