

EE 340: Project Proposal OFDM

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Objective:

1. Implement Orthogonal Frequency Division Multiplexing (OFDM) transmission and reception in GNU radio
2. To show that OFDM is more tolerant to multipath effects

Expected Input and Output for demonstration:

Input: Digital Message signal

Output: Received signal symbol constellation points, Transmitted signal in frequency domain,

Blocks used from GNU radio

Random Source, Chunks to symbols, Polyphase Arbitrary Resampler, Stream to Vector, FFT (reverse), OFDM Cyclic Prefixer, Vector to Stream, USRP sink, USRP source, Polyphase Clock Synchronizer, FIR, FFT, Costa's Loop, PSK demodulator

Hardware: USRP transmitter and receiver

Expected Challenges:

1. Inter Signal Interference due to Multipath Effect
Cyclic prefixer will be used to eliminate overlapping of the delayed signal with the original signal caused due to Multipath Effect
2. Removing Cyclic prefix in OFDM receiver

Block Diagram

