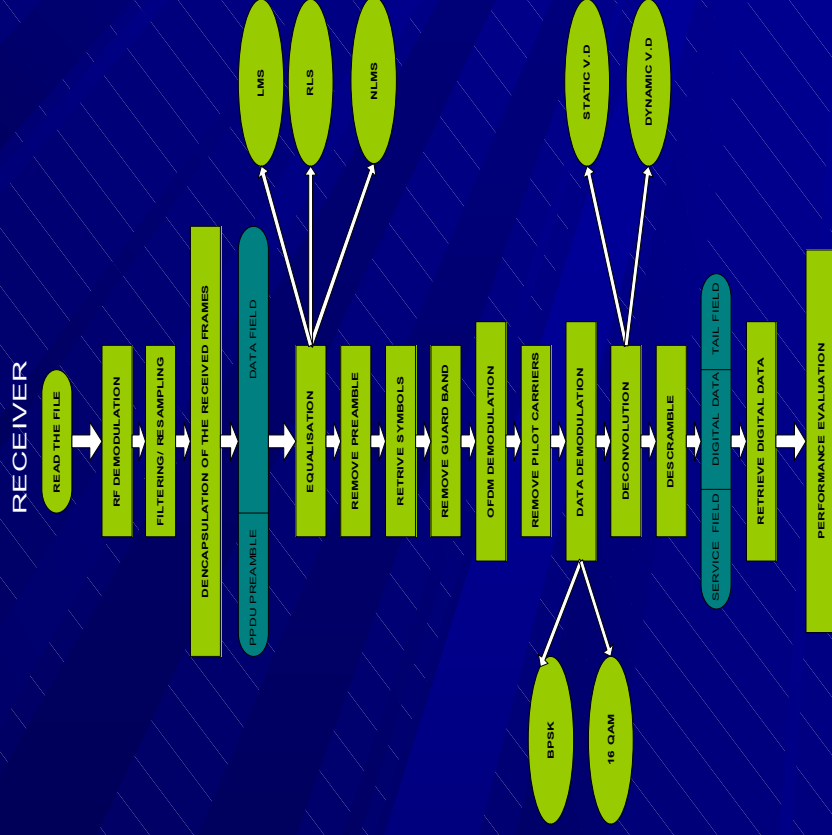


O.B.I.T.S: OFDM Based Integrated Transceiver System

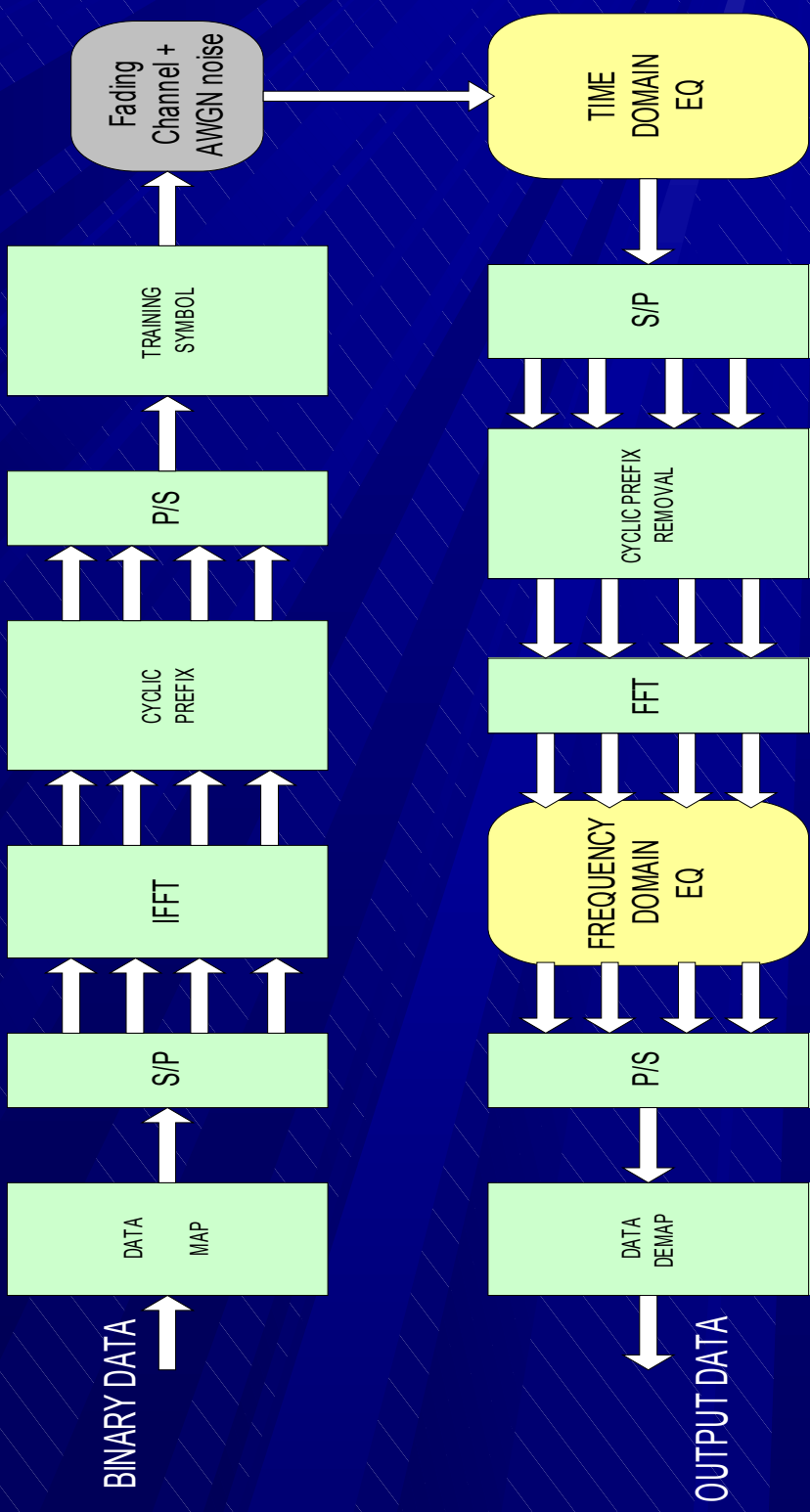


Presented By: Abhijit Navalekar

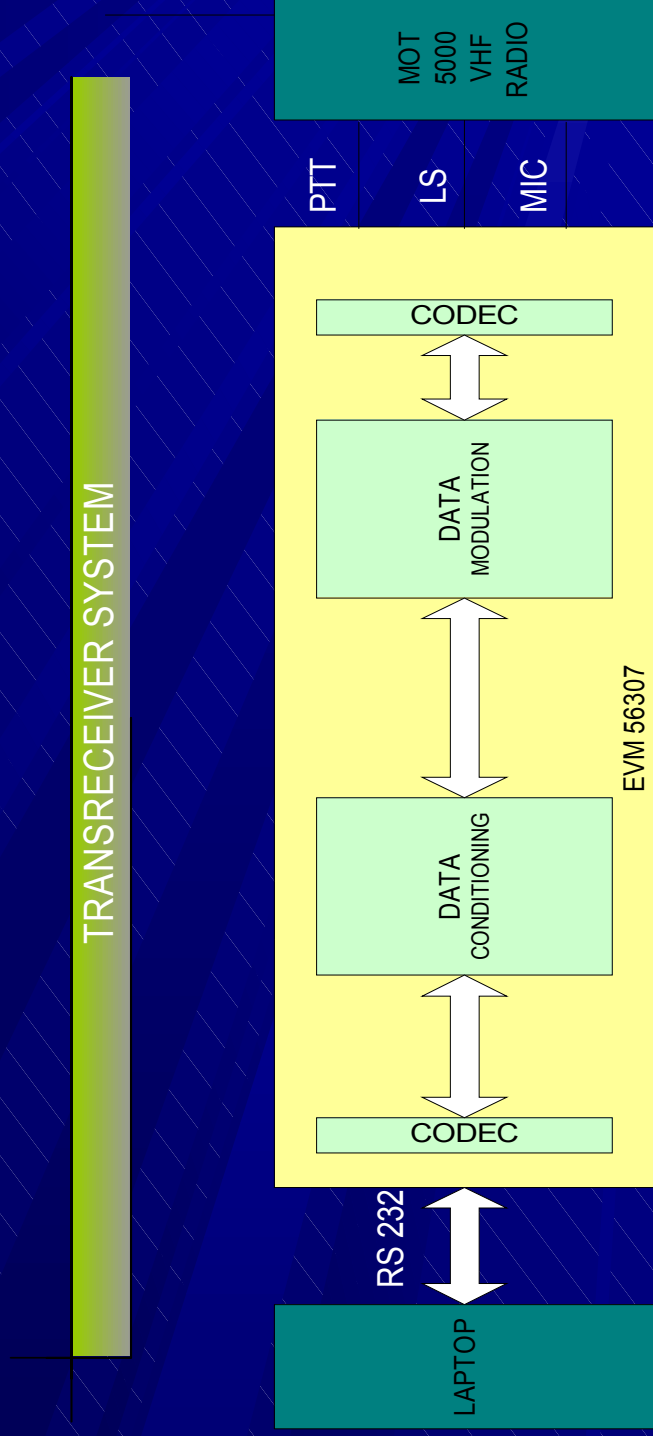
Advisor: William R. Michalson

O.B.I.T.S

OFDM MODEM IMPLEMENTATION



BLOCK DIAGRAM FOR OFDM RECEIVER



PERFORMANCE EVALUATION (TEST CASE)

- Duration of Speech Signal: 0.4 sec
- Data Modulation: BPSK
- IFFT Size: 64
- Sub Carriers: 48
- Bits/Sample: 16 bits
- Length of OFDM RF Signal: 1040640 Samples
- Size of OFDM RF Signal: 8325120 Bytes

CENTER FREQUENCY	BANDWIDTH	TX SIZE	DURATION	PROJECTED DURATION
500 Hz	250 Hz	8325120 Bytes	4:20 min	~ 31 sec
1 KHz	500 Hz	~	2:10 min	~ 15 sec
2 KHz	1 KHz	~	1:05 min	~ 8 sec
4 KHz	2 KHz	~	32 sec	~ 4 sec

PERFORMANCE EVALUATION (TEST CASE Contd)

PROJECTED DURATION:

- Bits/Sample: 16 bits
- Length of OFDM RF Signal: 1040640 SamplesBits
- Each SampleBit represents a 'Bit' ~ Each 'Bit' is represented by 8 bits.

FOR TRANSMISSION : 1 Sample -> 16 Bytes

- Reduced Length of OFDM RF Signal: $(1040640)/8$ Samples

FOR TRANSMISSION : 1 Sample -> 2 Bytes

- Size of OFDM RF Signal: 1040640 Bytes

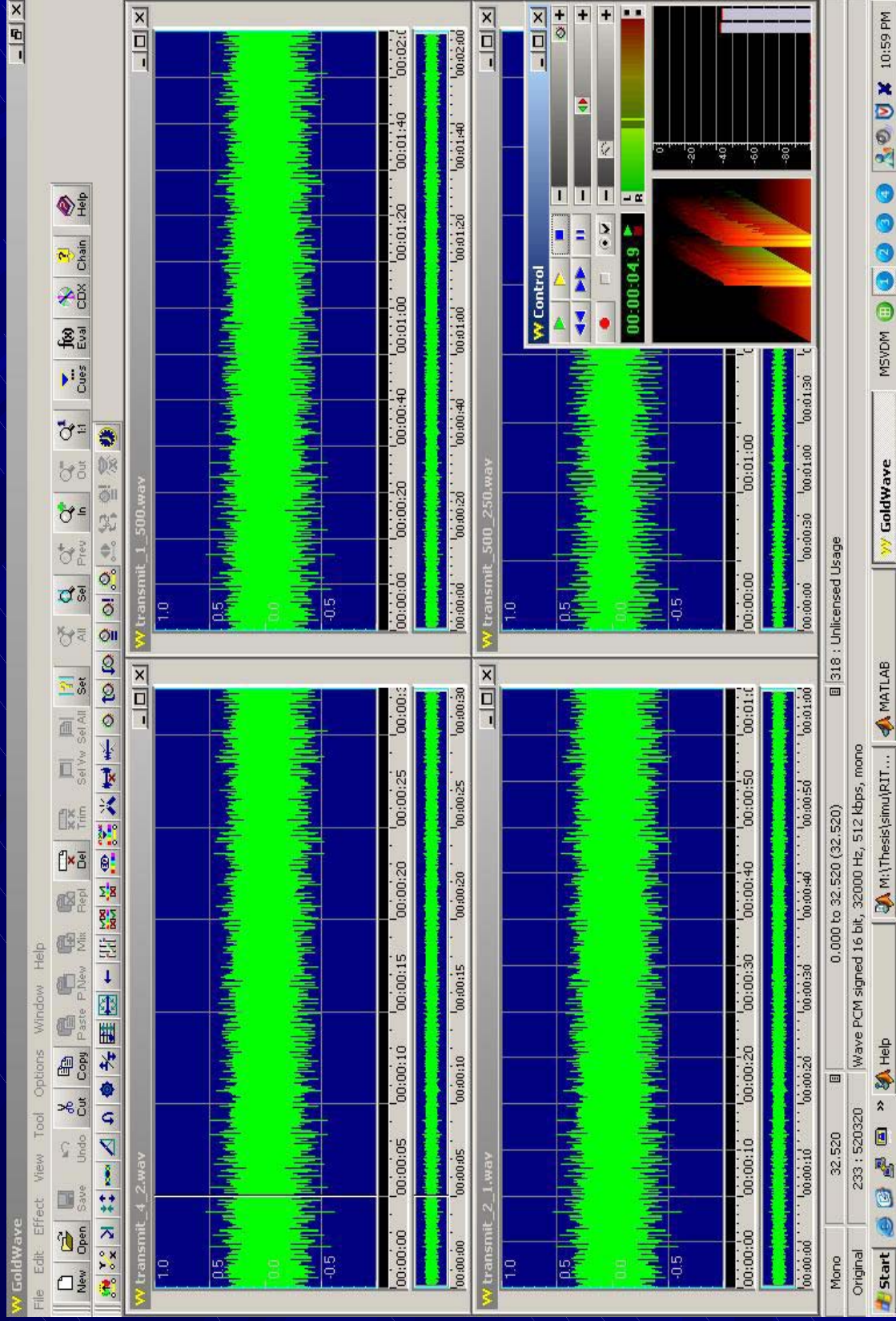
PROJECTED PERFORMANCE (TEST CASE)

PROJECTED PERFORMANCE:

- Duration of Speech Signal: 0.4 sec
- Data Modulation: 64 QAM
- IFFT Size: 64
- Sub Carriers: 60
- Pilot Carriers: 4
- Bits/Sample: 16 bits
- Size of OFDM RF Signal: 520320 Bytes

CENTER FREQUENCY	BANDWIDTH	TX SIZE	PROJECTED DURATION
500 Hz	250 Hz	520320 Bytes	~ 14 sec
1 KHz	500 Hz	~	~ 7 sec
2 KHz	1 KHz	~	~ 3 sec
4 KHz	2 KHz	~	~ 1.2 sec

TEST CASE: OFDM Transmit Signals



TEST CASE: Transmit Signal & Receive Signal

