Software Radio

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History of Software Radio

- Project started in 2001 by Philanthropist John Gilmore
- Eric Blossom headed code creation and project management duties
- Code redesigned and rereleased in 2004 as current model of GNUradio

What is GNUradio?

- It is a signal processing package
- It allows users to ‘hack’ the radio spectrum
- This is accomplished using USPRs (Universal Software Radio Peripherals)
- Can also use user generated signals (Microphones, data files, etc.)

Intent of GNU Radio

- To allow everyday people to learn about the radio spectrum
- To easily create prototypes that utilize RF
  - Data Transmission system
  - Two way communication radio
  - Spectrum Analyzer
  - FM Radio Tuner

Software Radio Block Diagram

About the USRP
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- Designed by Matt Ettus
- It is a data acquisition and transmission device
- Has 4, 64 MS/s 12 bit ADCs
- Has 4, 128 MS/s 14 bit D to A converters
- Communicates with computer over USB 2.0
- Can process 16 MHz wide band of spectrum
- Can range between 0 and 5.9 GHz

USRP Block Diagram

Digital Down Converter Block Diagram

Personal Experience with GNUradio

- Limited, just learned about it last week
- It is a linux based program only
  - Sid will go over ubuntu and GNUradio installation
- Do NOT try installing from source (at least for this assignment)
- The GUI is fairly easy to use
- There is a lot of useful information on the GNUradio wiki
  - http://gnuradio.org/redmine/wiki/gnuradio