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### C.R.I.T.R. - Communication Remote Information Transmitter

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David Fink

Scott Jarrell

Stayton Shaw

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### Objective

Establish an optical communication link and successfully transmit information back to a base station.

### Overview

CRITR will be driven wirelessly to a point of interest. A laser beam will be directed back to the user containing information.

### Specifications

Hardware includes master and slave pairs of Arduino Uno's and Xbees, A heatsinked H-bridge for (4) DC motor controls, two (dual axis) servo motors, and a 650nm 5 mW laser .

### Struggles/Lessons

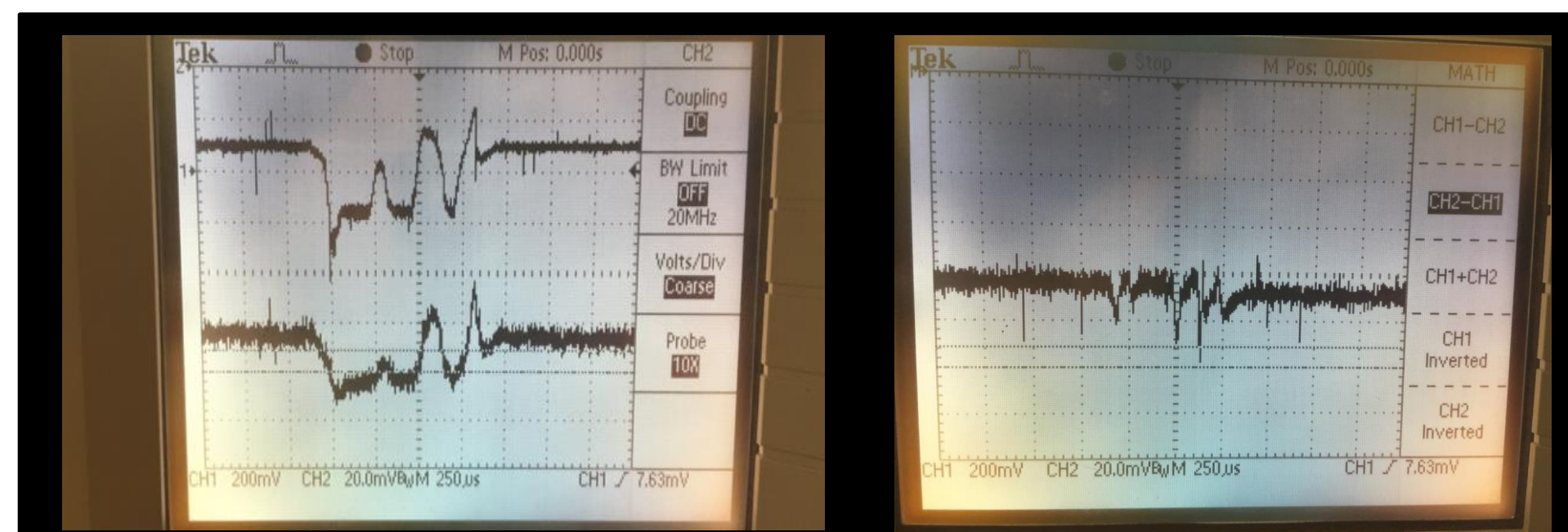
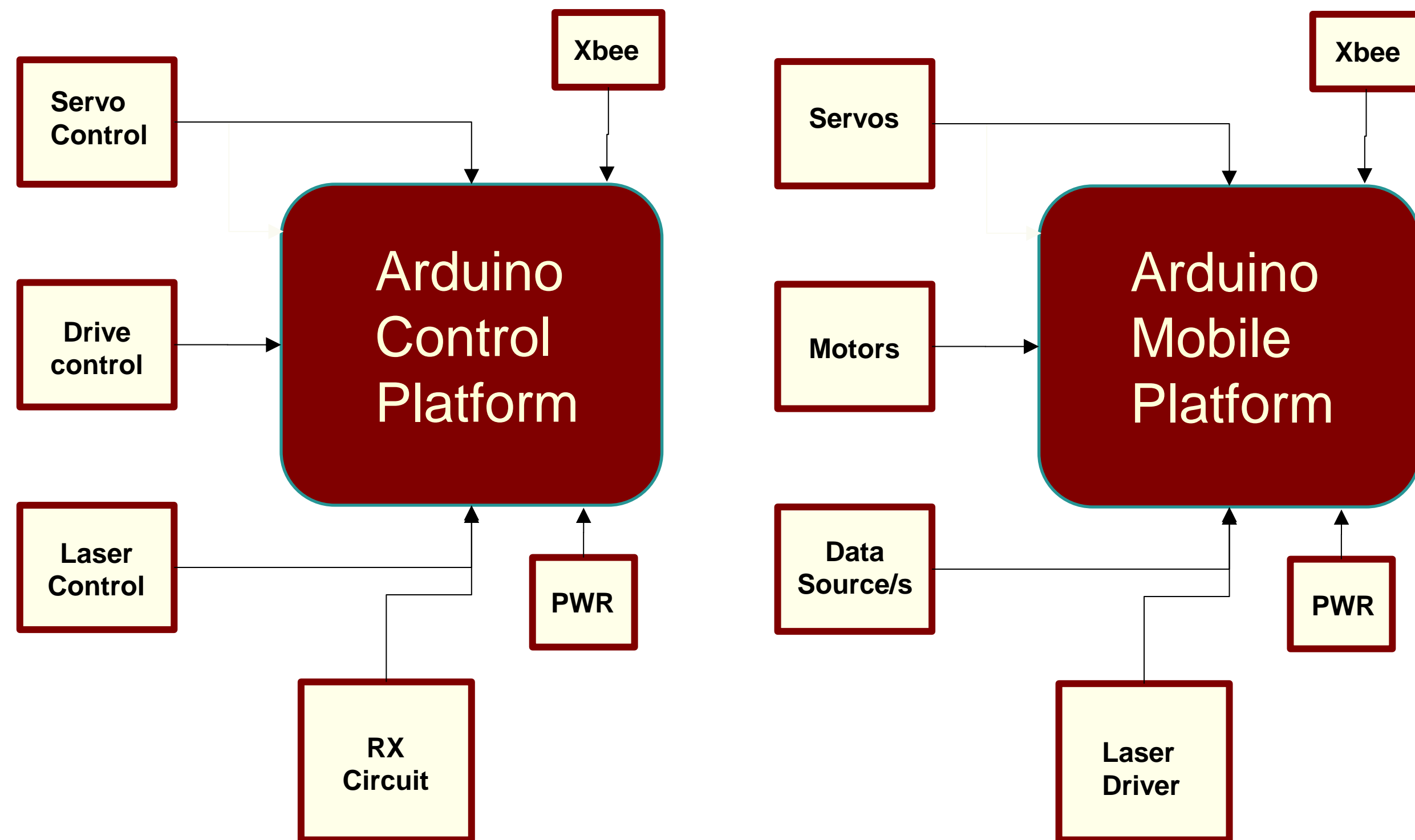
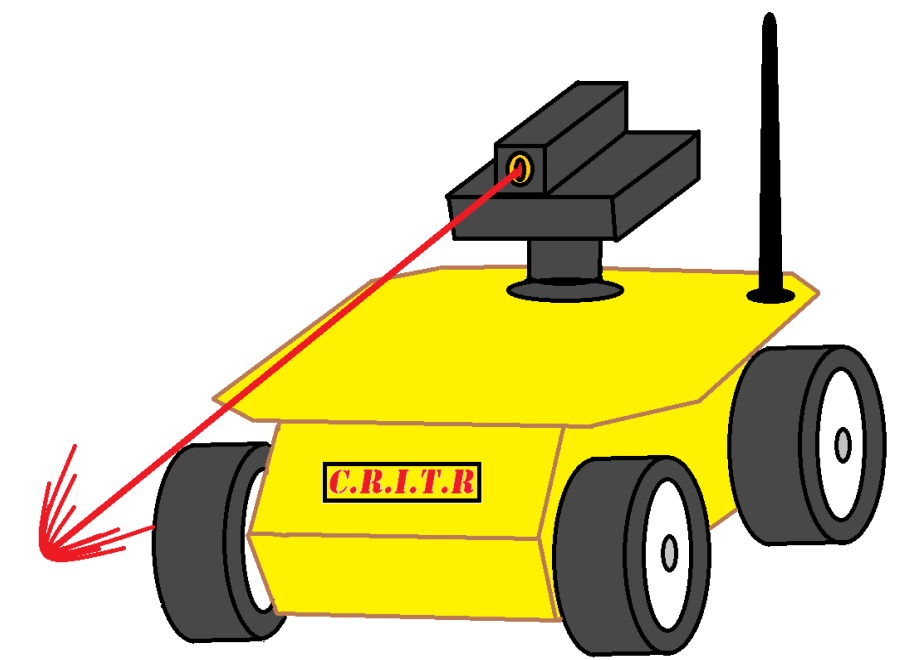
- Wireless protocol
- Floating pins
- Noise Effects
- Component Limitations

### Responsibilities

Evelyn - Receiver circuit, laser safety, logistics  
Dave - Chassis drive circuit, collimator  
Scott - Wireless controls, debugging  
Stayton - Software, integration, test, debugging

### Possible Future Capabilities

- Sending digital data
- Higher powered laser/s for longer distance
- Noise reduction code
- Auxiliary filters for cleaner transmission
- Multiple lasers on different wavelengths to increase data
- Video transmission



### Waveforms

- Left pic is the audio source (top) and received signal (bottom)
- Right pic is the difference, highlighting noise and loss

