

# Magnetic Field Detection for Imaging Systems

CenSSIS

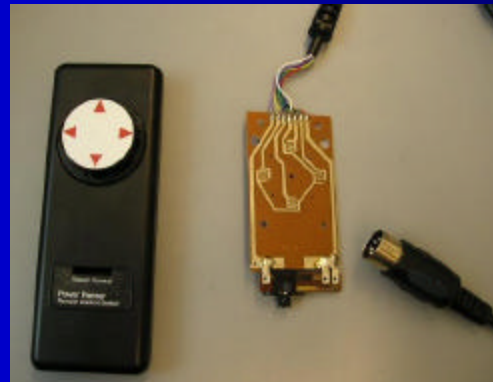
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Summer 2004

# Imaging System

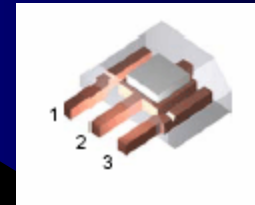
- Goal: Drive camera to point in the direction of the magnetic field
- Imaging system specs
  - Remote control powered
  - Panning Left/Right
  - Tilting Up/Down



# Detection Device

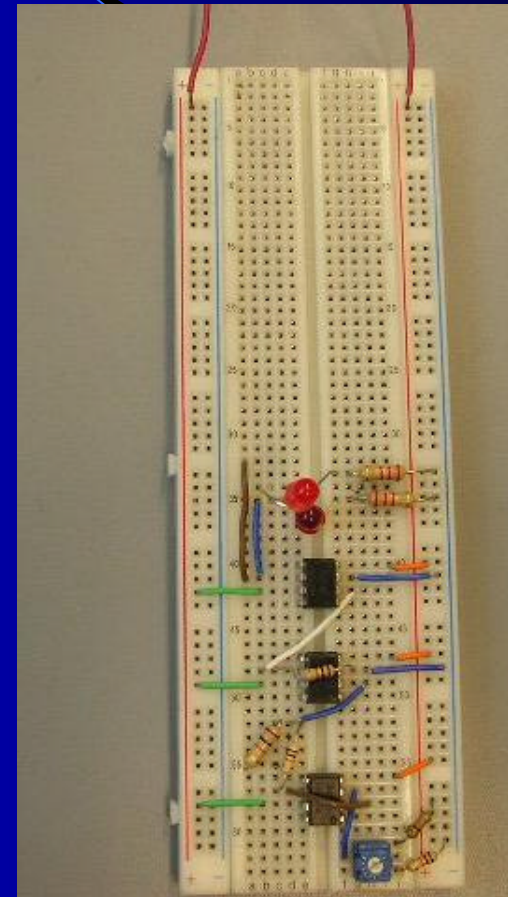
- Hall Probe

- 3 pin device
- Magnetic fields trigger changes in voltage output
- Magnetic field direction
- Output voltage is proportional to magnetic field



# Circuit Implementation

- Op Amps
  - Buffer
  - Inverting Adder
  - Comparator
- Hall probe
- Resistors
- Potentiometer
- LED's



# Tools Used

Oscilloscope

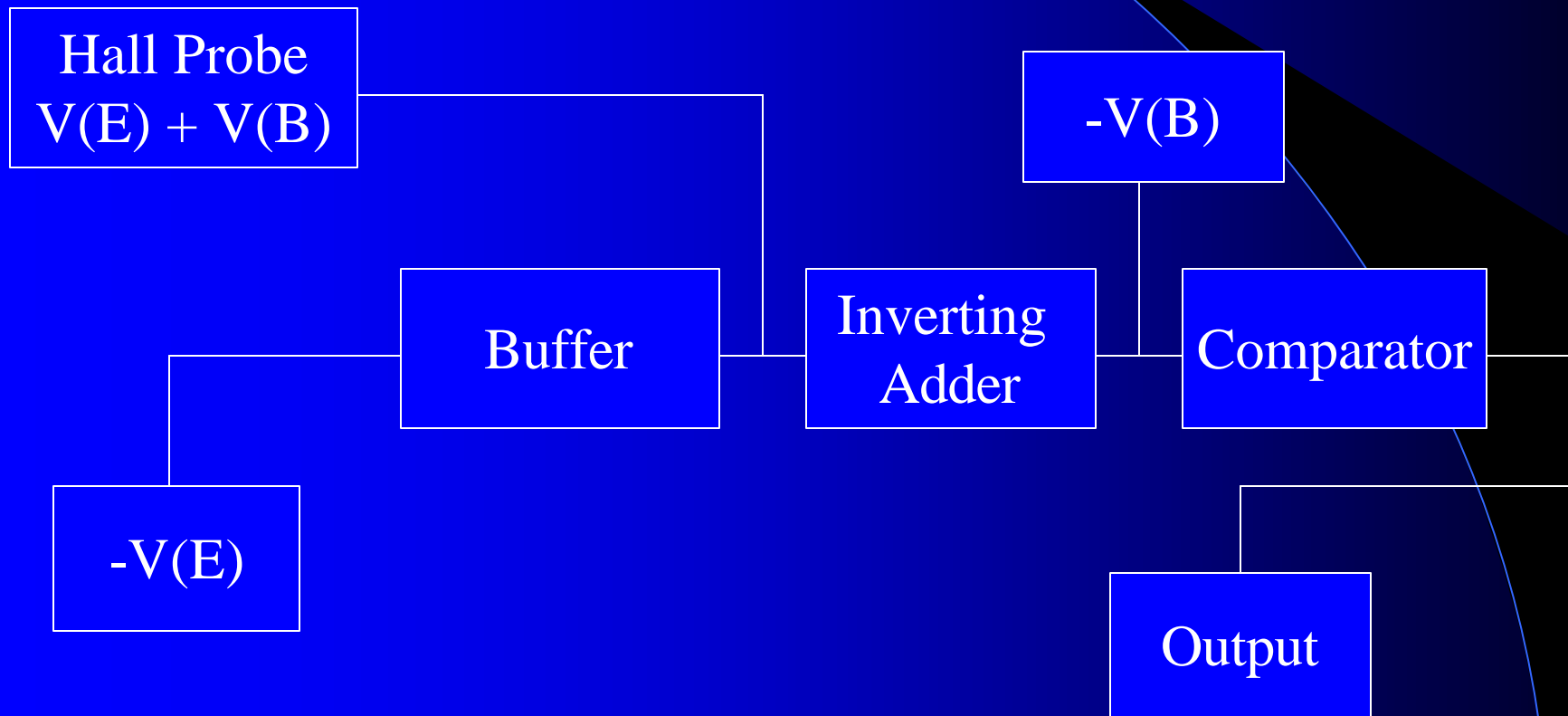
Capture CIS

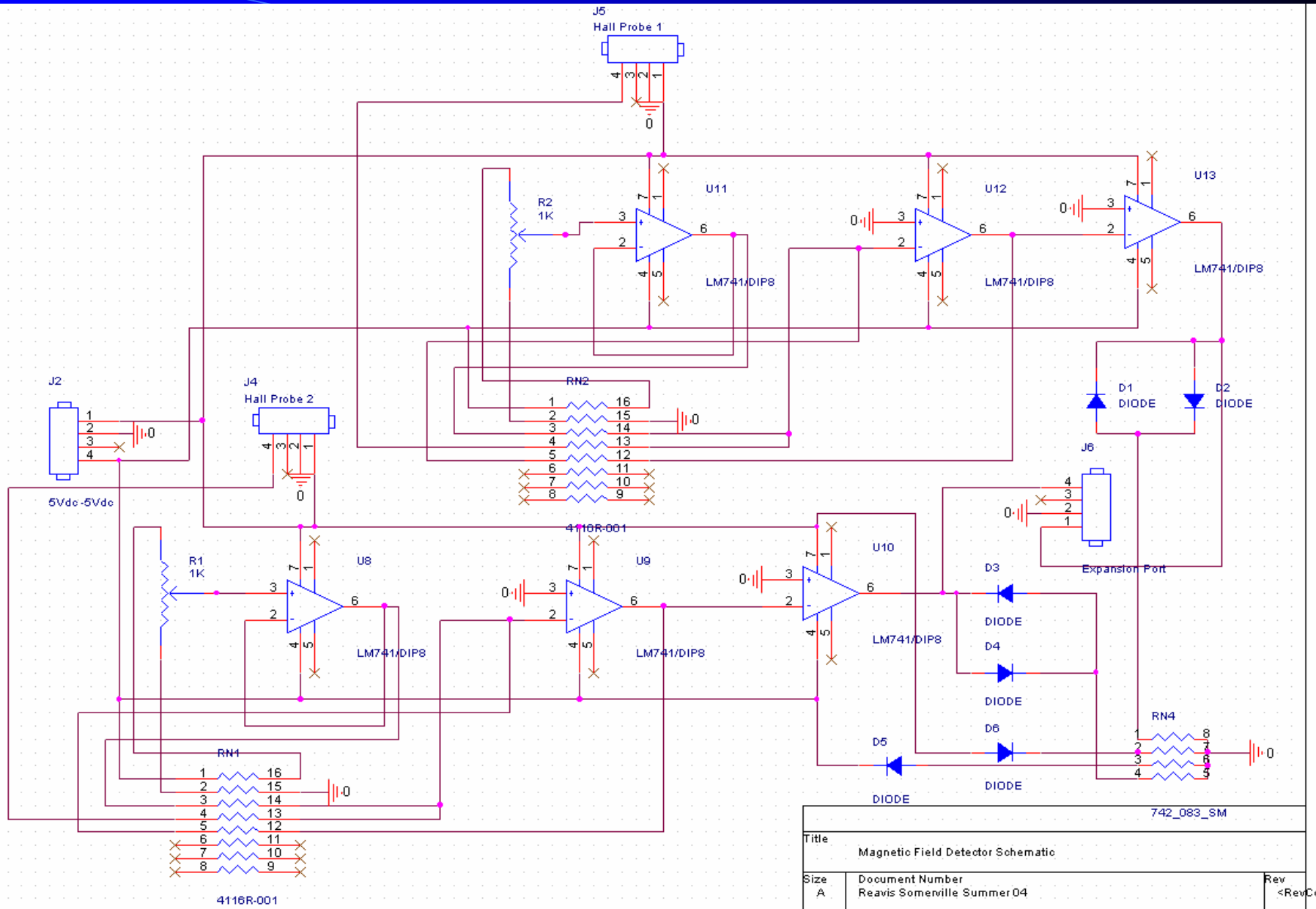
- Schematic representation of circuit
- Simulation of circuit

Layout Plus

- PCB Development software
- Wire Routing

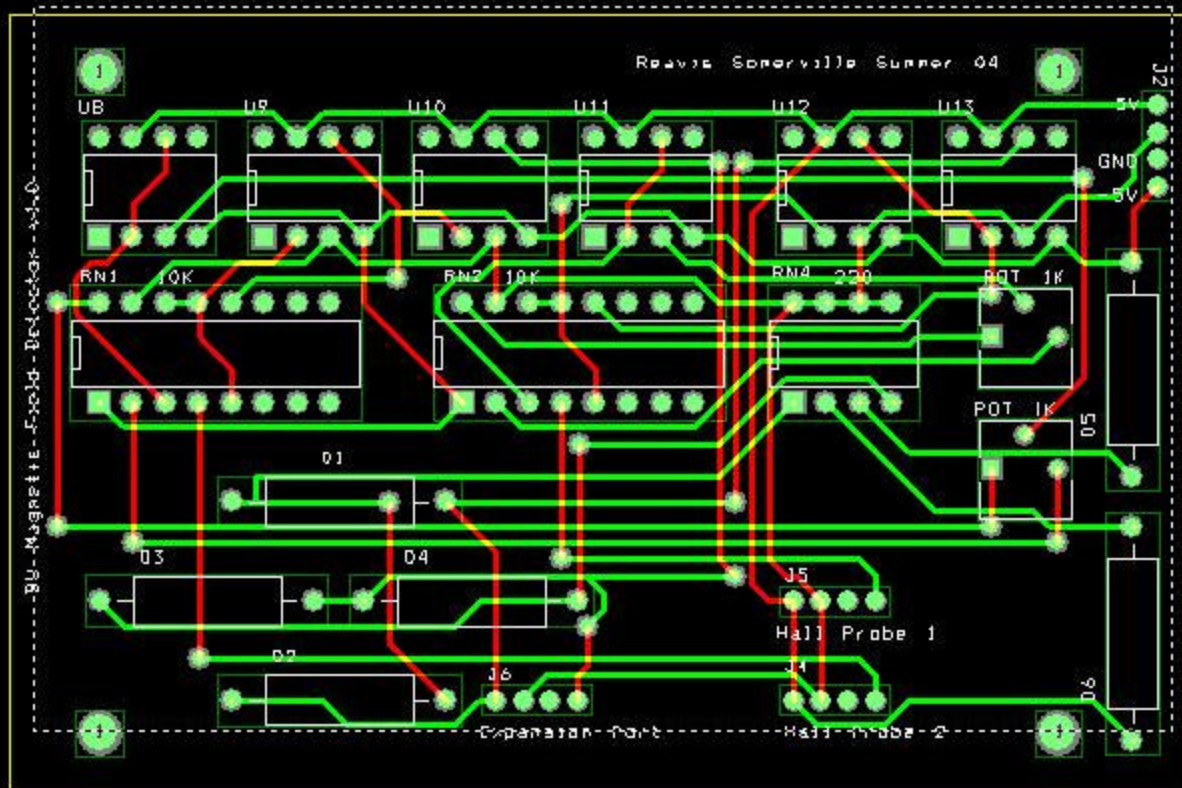
# Circuit Diagram





742_083_SM		
Title Magnetic Field Detector Schematic		
Size A	Document Number Reavis Somerville Summer 04	Rev <RevC
Date: Wednesday, July 28, 2004	Sheet 1	of 1

# Layout



# Real World Applications

- Satellites
- Metal Detectors
- Traffic Lights
- ABS

# Learning Experience

- Magnetic Fields
- Fundamentals of Circuit Design
- Design process needed to manufacture a PCB
- Reverse Engineering

Thank You