U of M UAV Research Project

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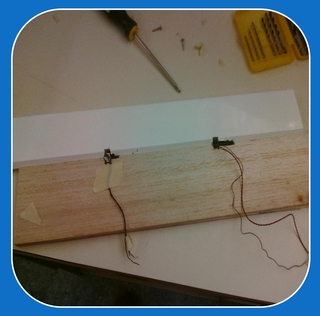
UAV Applications

- Law Enforcement
- Aerial Photography & Surveying
- Atmospheric Sensing
- Traffic Flow Monitoring

Choosing Sensor

- Strict resolution and accuracy requirements
- Minimal size and weight
- Digital output preferred, but analog potentiometers were most cost effective

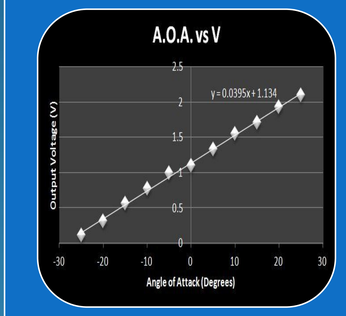


Testing

- Constructed mock wing & control surface model
- Installed sensors using 2 methods and determined the best setup based on aerodynamic efficiency, accuracy, and durability

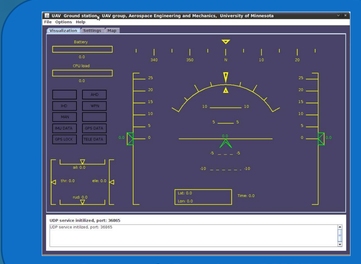
Installation on "FASER" UAV

- Mounted sensors, routed wires, & soldered potentiometric circuit to ADC chip
- Incorporated steady state resistors to modify total voltage supplied to potentiometers



Calibration and Data Collection

- Programmed flight computer to read control surface angle of attack rather than fractional output voltage
- Control surface A.O.A. data can then be used to analyze UAV's real-time flight characteristics



Ground Station HUD

UROP Timeline