



Project Goal

Develop a auto-aligning microwave link, aligning to the highest RF peak power to maximize the link's efficiency. Consisting of a transmit site and receive site to establish an efficient microwave link.

Background

The Point to Point Self Adjusting Microwave Link is a deployable system that gives companies, hobbyist and the military the ability to get a communication link up with little manual labor. This system must be capable of self-aligning, given an azimuth, to the transmitting site location without the need of having technicians do a manual path alignment. This system is motivated by the idea that while testing missiles, there can be negative results when radio links go down.

Materials

- National Instruments USRP 2920
- 2x 900 MHz 13dBi Flat Panel Antennas
- 12x 1ft 20mmx20mm Extrusions
- LabView 2019
- 2x Ball Bearing
- 2x Nema 23 Bipolar
- Arduino
- 2x Velleman TB6560



Figure 1. National Instruments USRP 2920 Radio

Fall Quarter

- •1st Half:
 - 3D Print Hardware
 - Develop Software Algorithm
- •2nd Half:

Winter Quarter

•1st Half: •2nd Half: Continued Testing Algorithm Testing

probably after the night

Auto-Adjusting P2P Microwave Link

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Milestones

- Combine Hardware and Software
- Replace Hardware Components Software / Hardware Testing

Future Work

Further [Text Needed Here – NTS: Ask David and Jeffrey what they want here and in Overview] [NTS: Send to David to send to Mahdi later today meeting.][Filler this is just here to get the look of it all. Yes, this is in fact real life filler. Blah hahhahha ha]



The Software used was LabVIEW and was split into three parts:

- Motor Controller: Communicates with
- **Best Alignment Algorithm:** a[Need to completely fill overview later]
- **Interpreting Incoming Signals:** Receives incoming [Filler to get the look of it filled]
- (2016).
- (ATNAC) (2011). doi:10.1109/atnac.2011.6096675
- to-point-p2p-ptp-microwave-link/.

References

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Overview

- Consists of two stations for communicating: • **The Base Station:** Set to transmit [Filler, yes this is filler. But you can read this and it
- makes sense, sort of.]
- The Receive Station: To be set up at a remote location and receive the signals from the Base Station. [Last amount of filler]



References

1. Singh, H. R., Kaur, H. & Monga, D. H. Automated Alignment of Microwave Antenna of Base Transceiver Station by utilizing hybrid sources . Recent Advances in Circuits, Systems, Signal Processing and Communications 141–146

2. Hassan, A. K., Hoque, A. & Moldsvor, A. Automated Micro-Wave(MW) antenna alignment of Base Transceiver Stations: Time optimal link alignment. 2011 Australasian Telecommunication Networks and Applications Conference

3. "Point to Point Microwave Link." Microwave Link, 8 May 2018, https://www.microwave-link.com/microwave/point-

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