Thesis Outline

Matthew Swartwout

July 19, 2016

- Introduction

- Literature Review / Previous Work

    - TurtleBot
    - Secure State Estimation
    - Distributed State Estimation
    - Noise Model for Simulated Robots

- Hardware Platform

    - TurtleBot
        * Basic Features and Overview
        * ROS Software Interface
        * Control System
            · Kobuki Base
            · Navigation
    - ZedBoard
        * Basic Features and Overview
        * Xilinx Zynq Features and Overview

- Distributed State Estimation

    - Theory
    - Methods
        * ROS node structure
        * Communications logic
        * Gazebo simulation details
    - Vulnerabilities of Methods
        * DoS attack

- Results

- Future Work

- Conclusion