UNIVERSITY OF TRENTO

Autonomous VTOL for Avalanche Buried
Searching
Avionics

Matteo Ragni

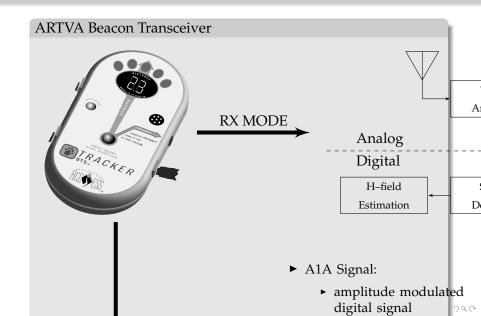Ingegneria Meccatronica Robotica

Outline

Introduction to Mountain Rescue

Design of a Digital ARTVA

Drone Avionics

Simulations

ARTVA Beacons Overview

ARTVA Beacon Transceiver

RX MODE

Analog

Digital

Antenna

H–field Estimation

Signal Detection

- A1A Signal:
  - amplitude modulated digital signal

State of the Art

Projects

- ► SHERPA: Universitá di Bologna
- ► Universitá di Torino
- ► Project Alcedo Eidgenössische Technische Hochschule Zürich

Digital searching algorithms

- ► H–Field Lobe Following and pinpointing
- ► Fast identification with SLAM and sum of Gaussian

H–Field in Transmission

Field Complexity

Questions?

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