Applying Real-Time Location Systems to Improve Personnel Safety in Dredging Construction

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Presentation Outline

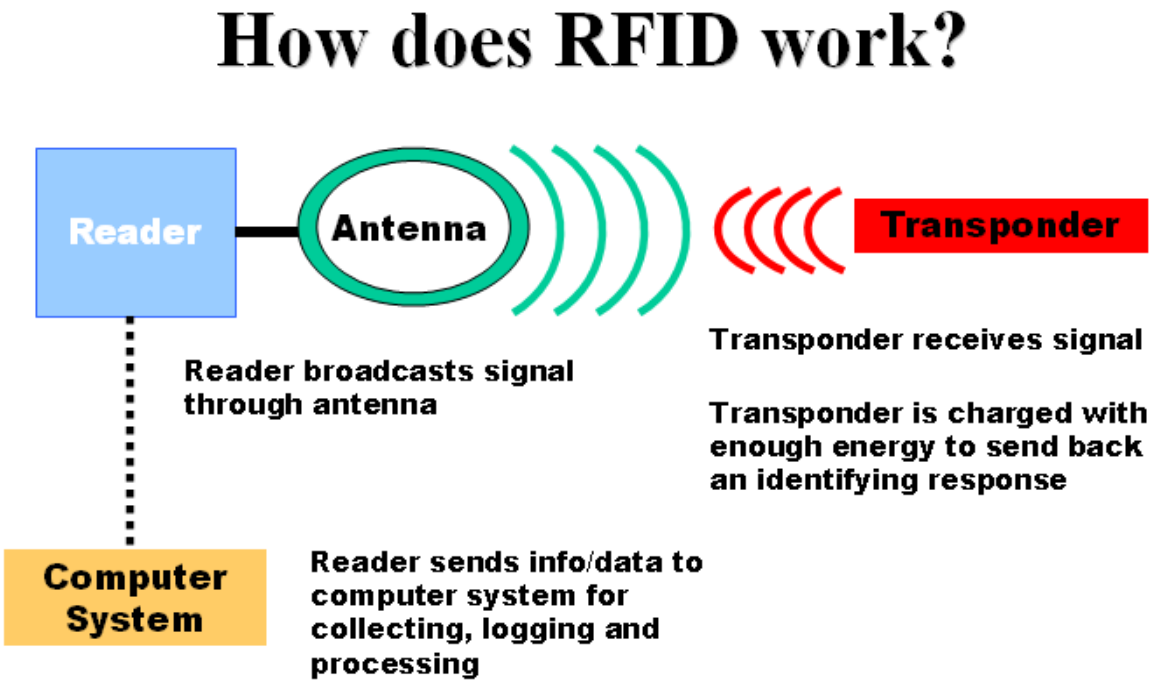
- Explaining Key Terms
- Conclusions of Literature Review
- Need for Research
- Aim, Objective, Scope
- Proposed Experiments
- Questions

Background

- Masters of Building Construction
  Auburn University Summer 2017
- Bachelors of Construction Science
  Texas A&M University Spring 2016
- Construction Industry Experience
- Why Dredging?

Key Terms

- Real Time Location Systems (RTLS)
- Radio Frequency Identification (RFID)



Types of RFID Tags

	Active Tags	Passive Tags	Semi-Passive Tags
Distance Range	Up to 100m	Up to 15m	Up to 80m
Power	Power Supply (Battery)	Inducted From Readers	Turned on by a Signal
Cost	$$$	$	$$
Data Storage	Extendible and Can Vary	512 bytes to 4 KB	Extendible and Can Vary
Data Transfer Rate	Up to 128 KB/s	Up to 1 KB/s	Up to 16 KB/s
Lifetime	Up to 10 years	Unlimited	Over 6 years

Conclusions of Literature Review

- Previous testing of RTLS in construction industry
- Tag positioning
- Outside Influences
- RFID limitations

Need of Research

- Individual sensing technologies utilization in dredging construction is nonexistent
- Improving overall safety in the dredging industry
- Transitioning safety methods to oil rigs, commercial fishing industry, and other marine industries.

Aim

The aim of this study is to evaluate the effectiveness of the real-time location systems RFID in providing individual personnel safety monitoring on a dredge.

Objective

1. To investigate how RTLS can be used in dredging construction.
2. To test personnel tracking on a dredging boat utilizing RTLS.
3. To examine the accuracy of RTLS locating personnel.
4. To evaluate the effectiveness of the RTLS when it comes to improving safety of the workers.

Scope

- Type of Project: Dredging Construction
- Target Group: Select number of workers on the dredge
- Real-Time Location Systems: RFID
- Experiments:
    1. Tracking individual locations and tag accuracy
    2. Monitoring restricted access control

Questions

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