

Progress Report
MCERF Project: RFID in Mechanical Contracting
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Work Complete

After a successful site visit and Leadership Meeting with the Waldinger Corporation, a determination of the necessary preparations has been completed. A whitepaper, executive summary, web address and timeline for this project have been sent to Dennis Langley of the MCERF board and funding for Phase I has been dispersed. Phase II, testing equipment, is about to commence with Phase III, analysis of data, beginning. Through Phase II, a determination of testing both passive and active technology has proven to be the best route to juxtapose costs and benefits.

Items of Interest

From the site visit, equipment to be tracked using RFID technologies has been decided to be man-lifts, gas bottles, and percent complete of ductwork installation. Man-lifts and gas bottles may prove to be a more traditional tracking element using portal tracking. Percent complete of ductwork installation has proven to present the most difficulty. Exploring passive options to keep the cost of tags low and readability high has yet to prove beneficial due to the much larger area that can be read by active technologies.

At this point, research has shown the passive tag/handheld reader proposed earlier is not yielding desired results. Therefore, testing for percent complete of ductwork installation has moved to the active tag/handheld PDA reader. On the other hand, passive adhesive tags on gas bottles and passive tags used for cargo holds both read by fixed antennas and readers have proven beneficial over active technology.

Active Technology Progress

At this point, the battery for the handheld PDA reader must be replaced before further testing may commence. However, testing available passive tags using handheld devices has provided no benefit with reads in the one to two yard ranges. The use of active technology seems to be the best option. Further testing and analysis of the active tags will determine the validity of this hypothesis.

Passive Technology Progress

The passive technology being tested and analyzed currently in the lab is focused on both fixed and handheld antennas and readers. The handheld readers for the passive technology have not proven beneficial for any of the proposed items for tracking. Only one of two handhelds has been tested. A battery is needed in the second of the two readers. However, better results are not expected.

Successful testing of the fixed antennas and readers as portals for gas bottle and man lift tracking has been conducted in the lab. Tags tested include adhesive tags for the gas bottles and tags used for cargo holds developed by Motorola (formerly Symbol). The cargo tags are necessary for the man lifts due to the greater possibility of damage and the

frequency of turnover during construction. The less expensive, adhesive tags, are placed on the gas bottles because the bottles are returned to the vendor once empty and the bottle may not be used at that particular jobsite again. However, man lifts are rented for the duration of the project and, due to the greater length of time spent on site, it would be beneficial to use the more durable cargo tag.

Website

The URL for the MCERF Project is

<http://www.unl.edu/rfsc/MCERF/MCERFHome.htm> this website is the best mode to find the latest progress for the project. Under construction is an updated template of both the RFSCCL Homepage and the MCERF Project Homepage to be in conjunction with the University of Nebraska-Lincoln template.

Goals for July 11, 2007

- Have received all appropriate Lithium-Ion batteries for both passive and active handheld readers. Dependent on receipt, lab testing of this equipment to be in the final stages.
- Lab Testing on all fixed antenna/reader combinations complete.
- Begin testing of equipment in jobsite environment at UNMC.
- Begin statistical analysis of findings from each scenario.
- Fully updated project notebook for reference.
- All templates for RFSCCL and MCERF Project Homepages successfully upgraded.