RES RFID ENABLED SOLUTIONS

Case

RES Breathes New Life into Union Pacific Railroad's Outdated System

Customer

Union Pacific Railroad

Challenges

UPRR's extensive track systems include a variety of tunnels, many of which can stretch as many as 8 miles long. These tunnels hold in carbon monoxide fumes and contain a very limited oxygen supply, meaning that, if a train was to unexpectedly stop inside one of the tunnels, employees' access to oxygen would be gravely threatened.

Before working with RES, UPRR had a system set up to combat these risks, but it lacked the definiteness needed in such a crucial situation. These procedures involved the pick-up and drop-off of oxygen tanks and masks by employees traveling through the tunnels. At each station, it was the employee's responsibility to manually enter into a log file a record of the transaction, including their employee information, as well as what was taken, returned, and used.

Main Issues:

- This system relied heavily on the "honor system;" there was no one at the station to verify that the information was entered correctly or at all. Thus, there was a large data accuracy concern.
- There were no safe guards in place to assure that the employee taking or using the equipment was authorized and certified to do so.
- There was a potential for malfunctioning tanks. Human error in data entry resulted in unreliable records concerning the frequency of equipment use. Thus, certain equipment could be taken or used that, in reality, needed to be serviced.

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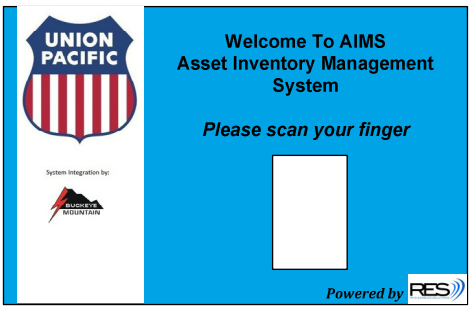
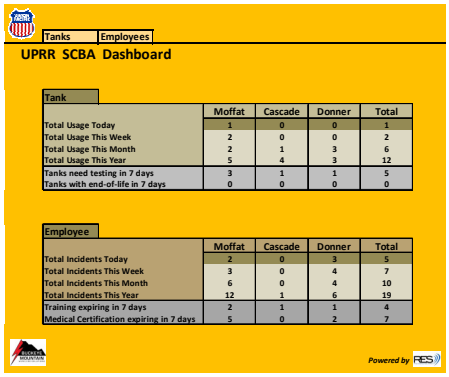
Our Solutions



RES first began by creating a state of the art, on-site system, incorporating the use of RFID, biometric, and voice command technology. We then took this a step further by developing a program that can communicate between UPRR's network and the local, on-site server. This software can access information from both systems, sort and compare data from the networks, and from this, draw accurate conclusions. It relays these conclusions in the form of equipment access restrictions, voice commands, and daily database upgrades. In addition, it updates itself every night, assuring use of the latest, most accurate information.

Each oxygen tank and mask is outfitted with a small, metal RFID tag. Then, during equipment pick-up and drop-off, employee fingerprints are read. By syncing data from the network server, the local server can tell if the employee is up to date on their certification, authorized to use the equipment, and even scheduled to work at the time of equipment removal or return.

Upon pick-up, voice commands prompt the individual on which tank to take, based upon current servicing information. Then, as the person walks out of the station, the RFID tag on the equipment taken is read and linked with the individual. The same procedure applies to equipment return, but this time voice commands tell employees where to place or leave the equipment. Furthermore, the system scans the RFID tags, logging which items were returned and which were not. The only manual input required of the employee is information on whether the tank was used.



All of this data, as well as the main network's information, is automatically uploaded and synced every night. Information concerning inventory levels, equipment servicing, equipment use, and employee recertification, etc. can then be accessed via web anywhere, on site or off, by authorized users.

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Results

Although implementation is still in progress, the full system is set to be up and running by March 2011. With the help of RES's new software, UPRR's oxygen risks will be lower than ever and safety will be at an all-time high. Preliminary tests results have shown the following:

- Accuracy will be at 100% due to automatic data entry and network communication.
- Daily upgrades will guarantee that information will always be up to date.
- Better security control will be assured through the use of the biometrics.
- The web server will allow authorized users and administrators access to network data anytime, anywhere, providing an ease of use never before experienced.

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