Tennessee Association of REALTORS®

Summary for State Leadership Idea Exchange Council

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Idea:

To develop an efficient and accurate attendance-tracking system for continuing education (CE) classes based on Radio Frequency Identification (RFID) technology.

Problem:

In the beginning there was a paper "Passport" system in which attendees had a passport manually stamped at the door when entering and exiting an education session. After the event, passports were collected and the data manually entered and submitted to the Tennessee Real Estate Commission (TREC) for credit. This method was inefficient, created bottlenecks at every entrance, and required staff members to monitor the entrances. It also created weeks of labor to ensure the correct information was submitted to TREC.

In 2013, TAR began using a barcode-based name badge system. Attendees placed their name badge under the scanner to check in and out of CE sessions. The Bluetooth barcode scanner reads the NRDS ID of that attendee and saves their check-in and timestamp to a local database on an iPad. This system was an improvement over the "Passport" system in that it was faster than manually stamping, and it reduced data-submission time from weeks to days. However, it did not alleviate the need to have each entrance monitored to ensure that the scanned data was saved successfully, nor did it completely alleviate bottlenecks of attendees trying to scan in and out.

Solution:

In September 2016, we piloted a completely automated, passive method of capturing attendees entering and exiting CE sessions based on Radio Frequency Identification (RFID) technology. This system automatically captures the NRDS ID and timestamp when an attendee walks through the doorway, therefore eliminating the two issues of bottlenecks and manual monitoring of every doorway.

About RFID:

RFID technology has been in use for years and can be traced to World War II in its earliest forms. RFID is currently used in industries as diverse as automotive production, warehouse inventory, livestock tracking, and sports (i.e. chips for road races). Until recently, RFID technology was considered prohibitively expensive to implement. However, in the past few years several technological advances have made RFID systems a more viable solution.

How it Works:

RFID systems consist of three main components: RFID Tags, RFID Readers, and Antennas.

- RFID Tags
  - Tags come in different forms such as plastic cards, small plastic housings, and paper printed labels.
  - Tags are encoded with user data—in our case, NRDS ID.
  - Tags are passive; no power supply or source is required.

- RFID Readers
  - The reader sends out powered signals via the antennas to look for valid RFID tags.
  - The tags respond with the encoded user data and unique identifier of that tag.
  - The reader interprets and handles the data that is sent back from the tags.
  - Readers can be integrated with custom interfaces based on popular programming languages such as C#, .NET, JAVA, and PHP.

- Antennas
  - Antennas control the area where RFID Tags will respond.
  - Coverage areas are flexible, anywhere from 1’ to 30’.
  - Antennas can be mounted or placed in floor mats for flexible coverage options.

Initial Testing:

At this year’s TAR Convention in Charleston, S.C., we performed an initial test with an RFID system developed by IT Manager John Crawford.

At the entrance to our classroom, we used the RFID system parallel to the barcode-scanning system to ensure that accurate data was collected. Name badges containing encoded RFID tags and barcodes were printed on peel-and-stick labels for each attendee. After the event, we compared the data from each system and determined that RFID was 100% in sync with barcode data. Every attendee who scanned in via barcode was recognized by the RFID system as well.

The only data discrepancies we discovered were when the RFID system collected data for several attendees who did not scan in via barcode. These were staff members, local association AEs, or attendees who were grandfathered and exempt from CE requirements. These entries obviously do not need to be submitted as part of the final roster and can be removed through pre-filtering techniques when encoding the RFID tags for their name badges.

Further Development:

We plan to continue developing the RFID system through next steps that will include:

1. Improve the implementation and setup of hardware components for the RFID system.
2. Integrate the RFID system with other association management platforms (i.e. RAMCO).
3. Expand the RFID system for use with multiple classrooms at our next annual spring conference (March 2017).