

The Client

The Client is a world's leading manufacturer of aluminum.

Business Situation

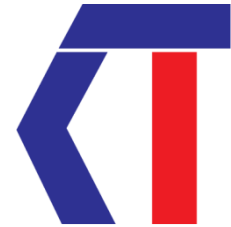
The client is in the business of manufacturing aluminum as mass production as well as to customer specification. The customer specification includes thickness of aluminum coil and its strength, brittleness etc. To manufacture aluminum coil to such specification which is prepared from molten aluminum has to undergo iterative heat & beat treatments. The number of iteration is dependent on specification and decided by pre defined process. Every time a heat & beat treatment happens it need to be allowed to cool down to room temperature before it is treated again. So to improve capacity utilization of heat & beat treatment equipment client needs to keep the hot coil aside and get another coil which is at room temperature to treat. Once the coil gets to a temperature of about 50⁰ C it will tagged with paper slip which contains order number, customer number etc. Coil is then stacked on to a rack wherever the space is which could be as high as 30 ft by a Crain. Often such paper tags can get half burnt or torn out such that information written on that illegible. Often such coil go through expensive recycling process. Plus when aluminum coil is stacked as high as 30 ft., its very hard to read the information on tag. So client has to literally search the coil.

The client implemented Oracle 11i modules such as Order Management (OM), Inventory, BOM, WIP etc. Once the order got created in OM with customer specification the work order got created in WIP which keeps track of all customer specification and number of iterations of treatment the coil went through so far.

The Challenges

The issues to address are:

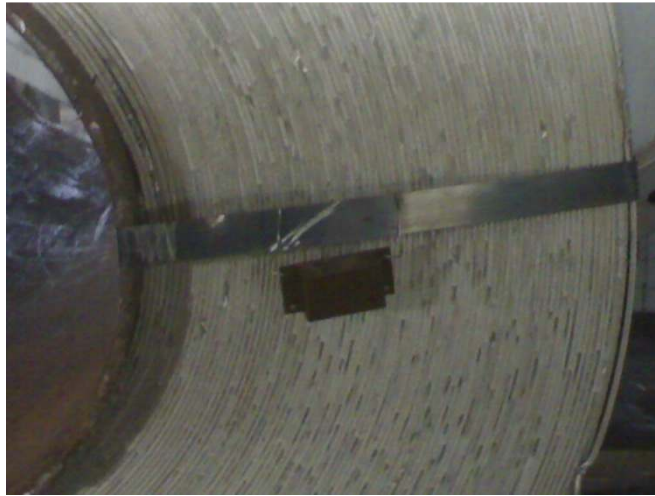
1. How to avoid expensive recycling process in case the coils' tag got burnt or torn out
2. How to easily identify where is the coil instead of literally searching it.



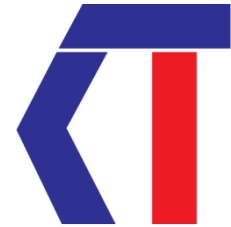
The Solution

Helped the client by addressing the challenges by developing:

1. Attach the aluminum coil with active RFID tag that can blink when polled by RFID reader from as far as 100 ft.



2. Prepared matrix for RFID readers so that we know at every 30 ft we can attach a reader.
3. Have RFID readers at every rack such that the computer can display which rack the coil is in so that in a huge warehouse one need not search for blinkers.
4. Created a custom table in Oracle Apps OM schema where order line ID and RFID tag numbers (unique) are stored for all the aluminum coils that are added.
5. Created a custom table to store matrix of rack number versus RFID reader number.
6. Every time a work order enlisted for the heat & beat treatment the RFID tag number and iteration number, specification etc are also listed.
7. Developed simple pop up screen in standard work order screen to feed, the RFID tag of the coil that is to be treated, to all the readers in warehouse.
8. Based on which RFID reader/s reads the tag the rack number listed in the popup screen and also to the reader hold by crane operator.

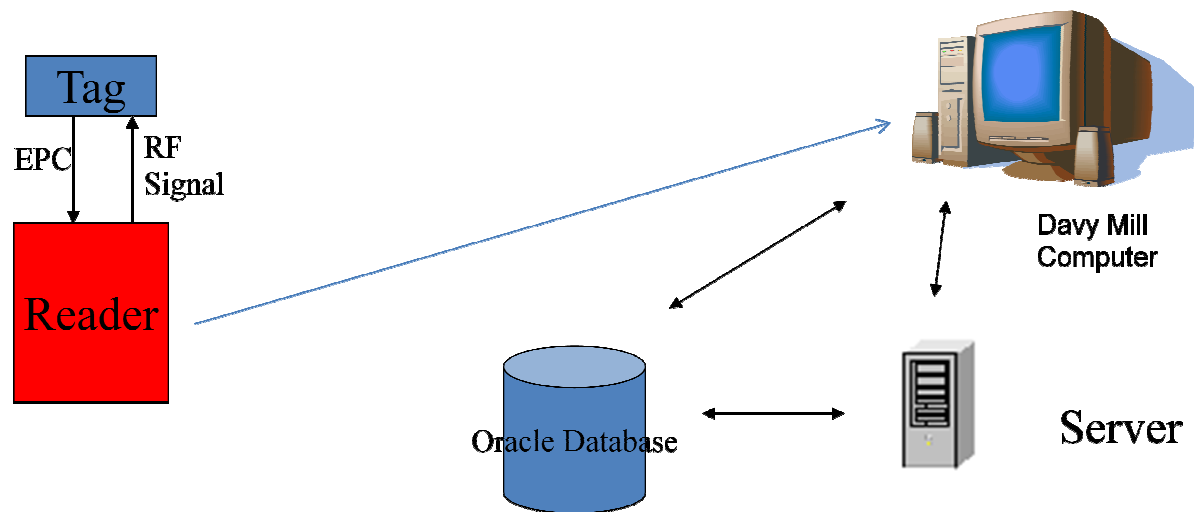


9. Crane operator then knows where to move the crane based on rack number and look for blinkers.





10. Every time when a aluminum coil comes to heat & beat treatment plant the tags are removed from coil.
11. After coil get treatment and temperature reduced to say 150⁰ C reattach the RFID tag with updated data and coil moved to a rack wherever the space is.
12. RFID tags were covered with re-useable high temperature tolerant material



Business Impact

The major benefit that client got from this project is quick search of aluminum coil in the warehouse as soon as they want. Other benefits accrued were:

1. Reduction of expensive recycling process
2. Less human intervention and there by reduced cost and safety issue
3. Better space utilization because now you can tag the coil with RFID tag even at 150⁰ C.
4. Ship the coil to customer on time so better customer satisfaction.

Value Adds

Apart from reducing the searching and handling cost, reduced expensive recycling process and better customer satisfaction were other benefits.



The Technology

- Oracle 11i Applications
- Oracle 9i
- SQL, PL/SQL
- Developer 6i
- XML, XSLT
- Java
- Microsoft Access
- Unix/Windows