



Leading precision components manufacturer adopts a RFID-enabled **EMPLOYEE TRACKING SYSTEM**

Eliminates queuing for punching cards at entry/exit

Automatic logging of entry and exit of many employees
moving simultaneously through the portal gates

Automatic tracking of employees at various locations

Extensive reports with easy data transfer to payroll



INSIDE:

Key Requirements
Solution
Implementation
Working
Benefits
Links

TECHNOLOGY

Solution:

EPC Gen2 compliant
personnel tracking solution

Tag Type:

Personna™ UHF Passive

Reader/Antenna:

Xtenna Proximity™
Xtenna Hybrid™

Method:

Multiple Tracking via Integrated
Reader/Antenna modules

Integration Platform:

RFID Middleware:

Xtenna™ WebToolkit
Xtenna™ Studio

Application: Essen RFID's
Employee Tracking System

Database: SQL Server 2005 Exp. ed.

Tag Manufacturer/Supplier:

Essen RFID, with US based chip inlay

Reader/Antenna Manufacturer:

Essen RFID, with US based module

Systems Integrator:

Essen RFID

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CASE STUDY

KEY REQUIREMENTS:

Craftsman Automation is a leading engineering company manufacturing precision components and other high quality engineering products. It has a large number of employees working in various workshops within the premises.

Due to this, the company found it difficult to ascertain the current location of each employee amongst various departments. Attendance was also recorded manually for the employees with a monthly report including manual calculation of overtime. This was a very time consuming process.

Hence the company felt the need for an automated system that could easily record employee attendance and track their current location within the company premises.

Main challenges:

- Tracking the attendance of each employee.
- Tracking employees' location within the company.

SOLUTION:

Essen RFID proposed a RFID-enabled Employee Tracking System that deployed RFID tags to log employee attendance and track their whereabouts at various locations within the company premises. It involved the issue of RFID ID tags to each employee contained within their ID cards, which would be tracked through RFID readers placed at various locations.

IMPLEMENTATION:

A PERSONNA™ RFID tag is issued to each employee, embedded within their Employee ID card. Xtenna Hybrid™ RFID reader-antennas are positioned at the entrance and exit of the company premises and at the entrance of each department location. A Xtenna Proximity™ reader device is used to register the tags into the database. A camera is fitted at the main entrance gate.

The Employee Tracking System uses SQL Server as the back-end database for storing attendance and location data.

WORKING:

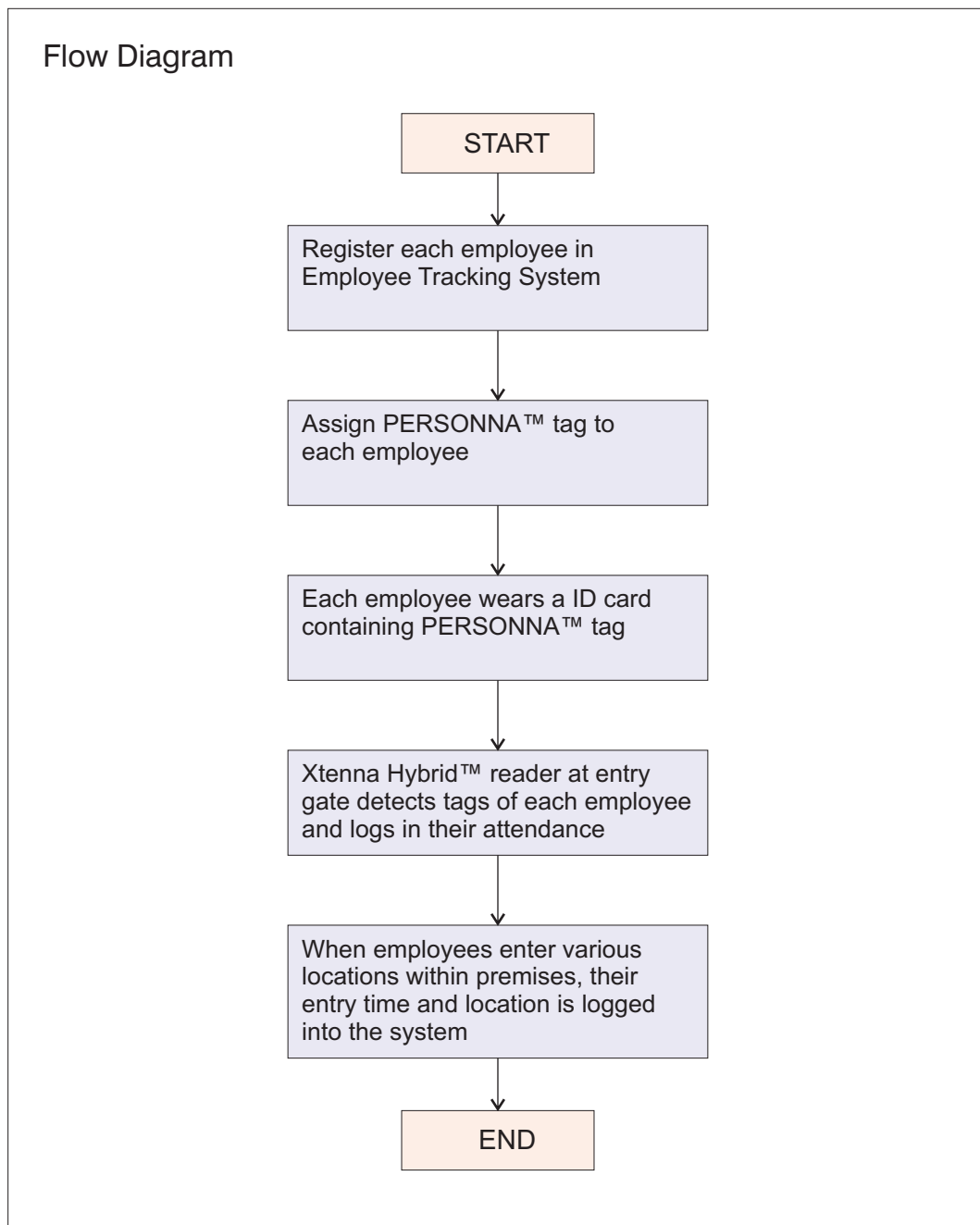
The Employee Tracking System has the following modules:

1. Attendance Tracking System
2. Location-wise Employee Tracking



CASE STUDY

Flow Diagram



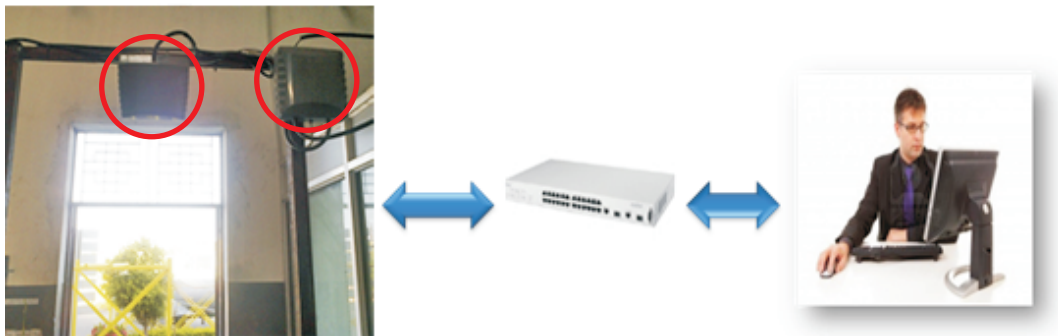
Attendance Tracking:

1. Xtenna Hybrid™ RFID reader-antenna devices are installed at the entry and exit gates of the company premises.
2. Xtenna Hybrid™ devices are also placed at the entrance/exit doorway of each department within the company.
3. The Department Master in the tracking system maintains details of each department of the company.




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- The Location Master contains location details for each Xtenna Hybrid™ device and their assigned IP addresses.
- All employees are registered and their details entered into the tracking system through the Employee Master.
- A Xtenna Proximity™ reader device is utilized to assign a PERSONNA™ RFID tag to each employee in the database. The tag is embedded in the employee's ID card and issued to him/her.
- Each employee entering the company premises must wear the ID card containing the PERSONNA™ tag.
- As each employee passes through the entrance, their ID tags are detected by the Xtenna Hybrid™ and verified whether registered in the database of the tracking system. If the employee is registered, the IN date/time is logged into the system.




- A camera mounted at the entrance captures the live image of each employee entering the premises. The security guard can compare this live photo with the photograph of the employee registered in the database and verify his identity, thereby reducing fake attendance.

Current Photo



Amit Patil

Actual Photo



IN : JUN 30 2010 8:47AM
LATEST : JUN 30 2010 1:24PM

Amit	Patil
Acharya	Rajamani
Nandkishor	Patankar
PRAKASH	KANDOI
Nandkumar	Shinde
Ganpat	Lohar
Motiram	Jamdare
G.E.	Dudhavadkar
Sagar	Mane
Kiran	Taral
Munna	Saroj
Jatashankar	Rajbhar
Shashank	Shinde
Sanika	Tawade
Tejasvi	Thakur
Bhumi	Thakkar
Anand	Dupte

Present: 219
Absent: 69
Total: 288

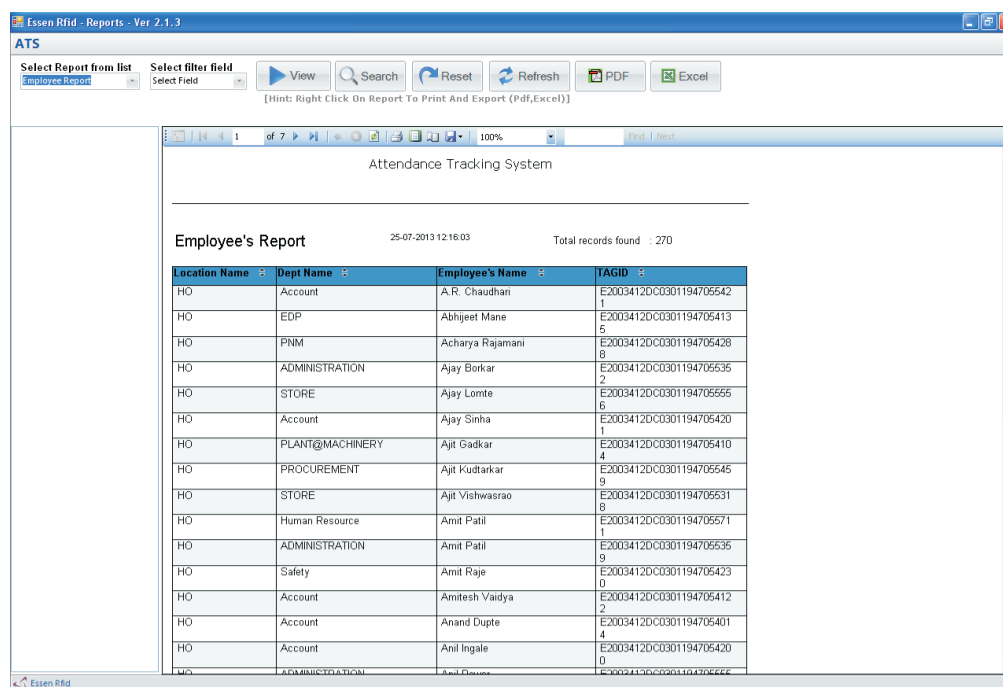
30-Jun, 13:23:49



CASE STUDY

10. The reader device can individually read the tag IDs of multiple employees simultaneously entering the premises and log in their attendance.
11. Any employee that is absent is automatically marked as an absentee in the tracking system.
12. Employees leaving from the OUT gate are read by the Xtenna Hybrid™ there and their exit time is logged into the system.
13. The system has extensive built-in report functions for the administrator or the company's HR department. Reports are very important in any attendance tracking system. The RFID-based automated system easily and accurately logs in attendance data and quickly generates reports that are available at any time to the management. This enables efficient analysis of employee attendance, performance and productivity.

Employee Report: Displays total employees, employee name, department, location, etc.



The screenshot shows the 'Essen Rfid - Reports - Ver 2.1.3' window. It has a menu bar with 'ATS' and a toolbar with buttons for 'View', 'Search', 'Reset', 'Refresh', 'PDF', and 'Excel'. Below the toolbar, there's a hint: '[Hint: Right Click On Report To Print And Export (Pdf,Excel)]'. The main content area is titled 'Attendance Tracking System' and displays an 'Employee's Report' for the date '25-07-2013 12:16:03'. It shows 'Total records found : 270'. The report is a table with columns: Location Name, Dept Name, Employee's Name, and TAGID.

Location Name	Dept Name	Employee's Name	TAGID
HO	Account	A.R. Chaudhari	E2003412DC03011947056421
HO	EDP	Abhijeet Mane	E2003412DC03011947054135
HO	PNM	Acharya Rajamani	E2003412DC03011947054288
HO	ADMINISTRATION	Ajay Borkar	E2003412DC03011947055352
HO	STORE	Ajay Lomte	E2003412DC03011947055556
HO	Account	Ajay Sinha	E2003412DC03011947054201
HO	PLANT&MACHINERY	Ajit Gadkar	E2003412DC03011947054104
HO	PROCUREMENT	Ajit Kudarkar	E2003412DC03011947055459
HO	STORE	Ajit Vishwasrao	E2003412DC03011947055318
HO	Human Resource	Amit Patil	E2003412DC03011947055711
HO	ADMINISTRATION	Amit Patil	E2003412DC03011947055359
HO	Safety	Amit Raje	E2003412DC03011947054230
HO	Account	Amitesh Vaidya	E2003412DC03011947054122
HO	Account	Anand Dupte	E2003412DC03011947054014
HO	Account	Anil Ingale	E2003412DC03011947054200
HO	ADMINISTRATION	Anil Dange	E2003412DC0301194705444

Unregistered Employees: A Not Registered list is automatically generated for those employees who have not yet been assigned tag ID cards. This functions as a continuous reminder to the administrator to issue RFID tag ID cards to these personnel.

Employees Not Registered

25-07-2013 12:16:32

Total records found : 3

Employee's Name	Dept Name
Santosh A. Jangam	ADMIN
Santosh Gawde	PROCUREMENT
Shashikant Sawant	TENDERING



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Absent Report: A duration can be selected by entering the From and To dates to generate a list of absent employees during that period.

Essen Rfid - Reports - Ver 2.1.3

ATS

Select Report from list: Absent Report

Select filter field: Select Field

View Search Reset Refresh PDF Excel

[Hint: Right Click On Report To Print And Export (Pdf,Excel)]

Attendance Tracking System

25-07-2013 12:18:37

Absent Report

Total records found : 4302

Dept Name	Employee's Name	Absent Date
Account	A.R. Chaudhari	01/04/2010
Account	A.R. Chaudhari	01/05/2010
Account	A.R. Chaudhari	02/04/2010
Account	A.R. Chaudhari	03/04/2010
Account	A.R. Chaudhari	04/05/2010
Account	A.R. Chaudhari	05/04/2010
Account	A.R. Chaudhari	06/04/2010
Account	A.R. Chaudhari	07/04/2010
Account	A.R. Chaudhari	08/04/2010
Account	A.R. Chaudhari	08/05/2010
Account	A.R. Chaudhari	10/05/2010
Account	A.R. Chaudhari	13/05/2010
Account	A.R. Chaudhari	15/05/2010
Account	A.R. Chaudhari	17/05/2010
Account	A.R. Chaudhari	18/05/2010
Account	A.R. Chaudhari	19/05/2010
Account	A.R. Chaudhari	20/05/2010
Account	A.R. Chaudhari	26/04/2010
EDP	Abhijeet Mane	17/05/2010
EDP	Abhijeet Mane	19/05/2010
EDP	Abhijeet Mane	21/05/2010
EDP	Abhijeet Mane	26/05/2010
PNM	Acharya Rajamani	01/04/2010
PNM	Acharya Rajamani	01/05/2010

Total Working Days Report: This provides a total working days report for a selected period and displays attendance performance data of total days, present days, late attendance, late leaving (overtime) for each employee.

Essen Rfid - Reports - Ver 2.1.3

ATS

Select Report from list: Total Working Days Report

Select filter field: Select Field

View Search Reset Refresh PDF Excel

[Hint: Right Click On Report To Print And Export (Pdf,Excel)]

Attendance Tracking System

25-07-2013 12:18:29

Total Working Days Report

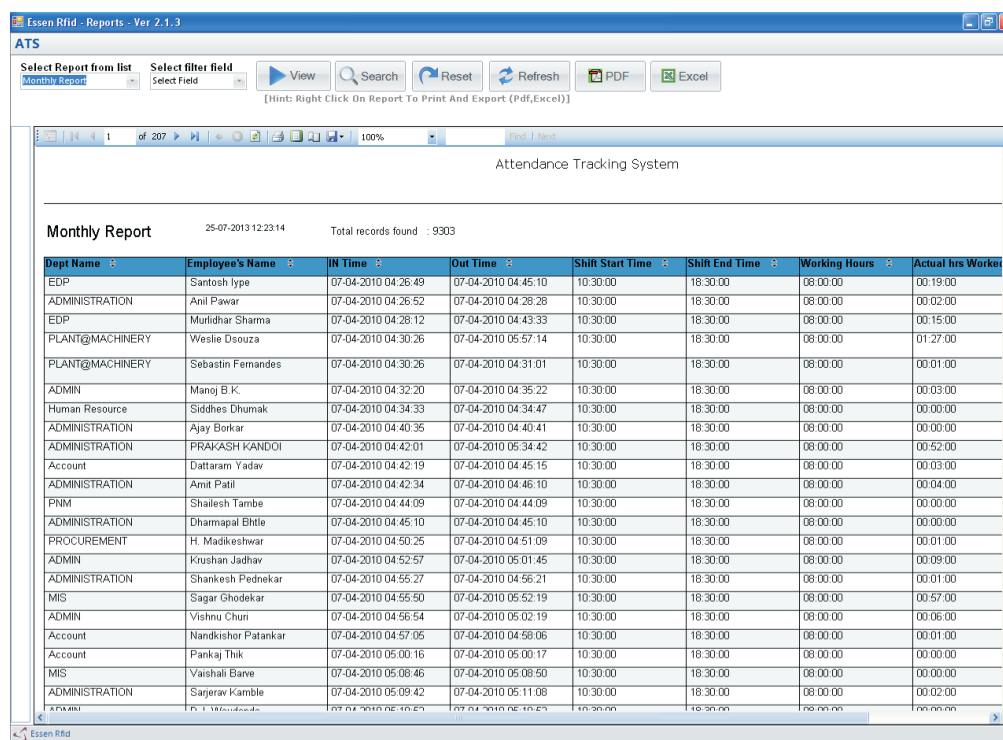
Total records found : 270

Dept Name	Employee's Name	Total Days	Days Present (Excluding Sunday & approved holiday)	Late Mark	Late Sitter
Account	A.R. Chaudhari	1302	33	6	22
EDP	Abhijeet Mane	1302	9	2	2
PNM	Acharya Rajamani	1302	32	32	0
ADMINISTRATI ON	Ajay Borkar	1302	40	5	13
STORE	Ajay Lomte	1302	40	37	20
Account	Ajay Sinha	1302	37	3	1
PLANT&MACH INERY	Ajit Gadkar	1302	36	8	6
PROCUREMENT	Ajit Kudtarkar	1302	10	1	4
STORE	Ajit Vishwasrao	1302	37	3	0
Human Resource	Amit Patil	1302	43	2	12
ADMINISTRATI ON	Amit Patil	1302	11	5	4
Safety	Amit Raje	1302	40	11	16
Account	Amitesh Vaidya	1302	42	2	31
Account	Anand Dupte	1302	40	3	31
STORE	Anand Pandit	1302	31	2	17
PROCUREMENT	Anand Patil	1302	41	10	32
Account	Anil Ingale	1302	41	1	13
ADMINISTRATI ON	Anil Pawar	1302	37	4	14
Human Resource	Anila Sawant	1302	37	8	0
PNM	Anil Sawant	1302	47	6	29



CASE STUDY

Monthly Report: This report is extremely useful in transferring data of employees to the payroll system. The report enables filtering of each employee's attendance data on parameters such as IN time, OUT time, working hours, overtime hours, etc. and enables easy data utilization for the payment generation process.



The screenshot shows the 'Essen Rfid - Reports - Ver 2.1.3' application window. It features a 'Select Report from list' dropdown with 'Monthly Report' selected. Below this are buttons for 'View', 'Search', 'Reset', 'Refresh', 'PDF', and 'Excel'. A hint text says: '[Hint: Right Click On Report To Print And Export (Pdf,Excel)]'. The main area displays the 'Attendance Tracking System' interface with a 'Monthly Report' table. The table has columns: Dept Name, Employee's Name, IN Time, Out Time, Shift Start Time, Shift End Time, Working Hours, and Actual hrs Worked. The data is for the date 25-07-2013 12:23:14, with 9303 total records found. The table lists various employees and their attendance details for the month of July 2010.

Dept Name	Employee's Name	IN Time	Out Time	Shift Start Time	Shift End Time	Working Hours	Actual hrs Worked
EDP	Santosh Iype	07-04-2010 04:26:49	07-04-2010 04:45:10	10:30:00	18:30:00	08:00:00	00:19:00
ADMINISTRATION	Anil Pawar	07-04-2010 04:26:52	07-04-2010 04:28:26	10:30:00	18:30:00	08:00:00	00:02:00
EDP	Muridhar Sharma	07-04-2010 04:28:12	07-04-2010 04:43:33	10:30:00	18:30:00	08:00:00	00:15:00
PLANT@MACHINERY	Weslie Dsouza	07-04-2010 04:30:26	07-04-2010 05:57:14	10:30:00	18:30:00	08:00:00	01:27:00
PLANT@MACHINERY	Sebastin Fernandes	07-04-2010 04:30:26	07-04-2010 04:31:01	10:30:00	18:30:00	08:00:00	00:01:00
ADMIN	Manoj B.K.	07-04-2010 04:32:20	07-04-2010 04:35:22	10:30:00	18:30:00	08:00:00	00:03:00
Human Resource	Siddhes Dhumak	07-04-2010 04:34:33	07-04-2010 04:34:47	10:30:00	18:30:00	08:00:00	00:00:00
ADMINISTRATION	Ajay Borkar	07-04-2010 04:40:35	07-04-2010 04:40:41	10:30:00	18:30:00	08:00:00	00:00:00
ADMINISTRATION	PRAKASH KANDOI	07-04-2010 04:42:01	07-04-2010 05:34:42	10:30:00	18:30:00	08:00:00	00:52:00
Account	Dattaram Yadav	07-04-2010 04:42:19	07-04-2010 04:45:15	10:30:00	18:30:00	08:00:00	00:03:00
ADMINISTRATION	Amit Patil	07-04-2010 04:42:34	07-04-2010 04:46:10	10:30:00	18:30:00	08:00:00	00:04:00
PNM	Shailesh Tambe	07-04-2010 04:44:09	07-04-2010 04:44:09	10:30:00	18:30:00	08:00:00	00:00:00
ADMINISTRATION	Dharmapal Bhitte	07-04-2010 04:45:10	07-04-2010 04:45:10	10:30:00	18:30:00	08:00:00	00:00:00
PROCUREMENT	H. Madikeshwar	07-04-2010 04:50:25	07-04-2010 04:51:09	10:30:00	18:30:00	08:00:00	00:01:00
ADMIN	Krushnan Jadhav	07-04-2010 04:52:57	07-04-2010 05:01:45	10:30:00	18:30:00	08:00:00	00:09:00
ADMINISTRATION	Shankesh Pednekar	07-04-2010 04:55:27	07-04-2010 04:56:21	10:30:00	18:30:00	08:00:00	00:01:00
MIS	Sagar Ghodekar	07-04-2010 04:55:50	07-04-2010 05:52:19	10:30:00	18:30:00	08:00:00	00:57:00
ADMIN	Yishnu Chun	07-04-2010 04:56:54	07-04-2010 05:02:19	10:30:00	18:30:00	08:00:00	00:06:00
Account	Nandkishor Patankar	07-04-2010 04:57:05	07-04-2010 04:58:06	10:30:00	18:30:00	08:00:00	00:01:00
Account	Pankaj Thik	07-04-2010 05:00:16	07-04-2010 05:00:17	10:30:00	18:30:00	08:00:00	00:00:00
MIS	Vaishali Bave	07-04-2010 05:08:46	07-04-2010 05:08:50	10:30:00	18:30:00	08:00:00	00:00:00
ADMINISTRATION	Sarjavar Kamble	07-04-2010 05:09:42	07-04-2010 05:11:08	10:30:00	18:30:00	08:00:00	00:02:00

Location-wise Employee Tracking:

1. Xtenna Hybrid™ reader-antenna devices are installed at the entrance of each location in the company premises.
2. Each reader's IP address is mapped with its physical location in the tracking system.
3. All employees are instructed to always wear their PERSONNA™ tag ID cards throughout their stay inside the company premises.
4. When an employee enters a particular location, his tag ID is read by the Xtenna Hybrid™ at the location's entrance and its IN time and location is logged in to the server.
5. Similarly, when an employee exits a location, his OUT time is sent to the server.
6. An employee's current location is therefore easily known at all times.





CASE STUDY

BENEFITS:

- Automated logging of employee attendance into the tracking system without requiring queuing for punching cards.
- Easy and quick attendance report functions for management.
- Easy data transfer of attendance/absentee reports to payroll.
- Enables improved performance analysis and calculation of actual productive time of each employee.
- Efficient location tracking within premises enables management to easily track down a particular employee for a required urgent task.

LINKS:

Hardware:



Tags:



Software:



Reference Example:

<http://www.essenrfid.com/Mailer/persontracking-flash-demo.pdf>