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ESSEN

CASE STUDY

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Craftsman AUTOMATION

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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Xtenna™ Integrated RFID Antenna/Reader

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:

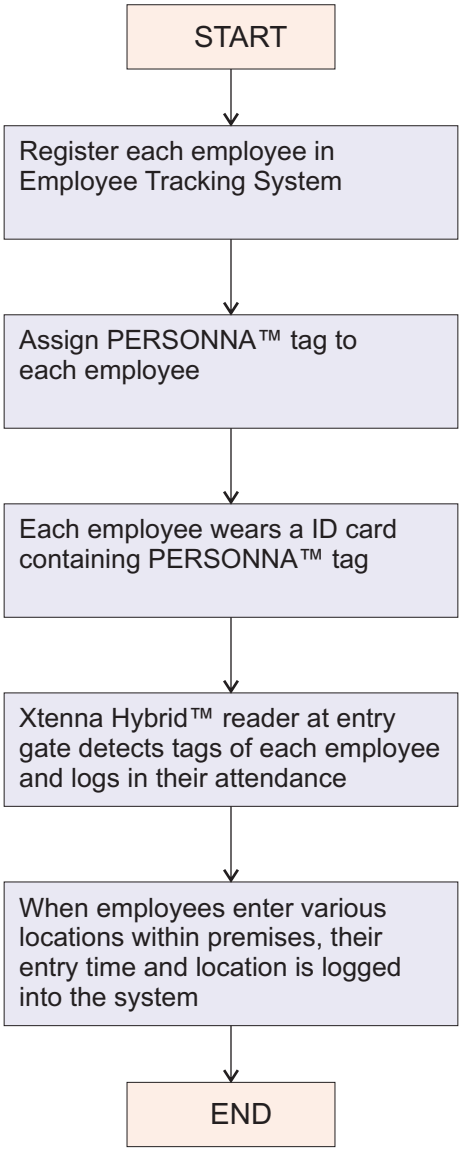
A PERSONNA™ RFID tag is issued to each employee, embedded within their Employee ID card. Xtenna Hybrid™ RFID reader-antennas are positioned at the entrance and exit of the company premises and at the entrance of each department location. A Xtenna Proximity™ reader device is used to register the tags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

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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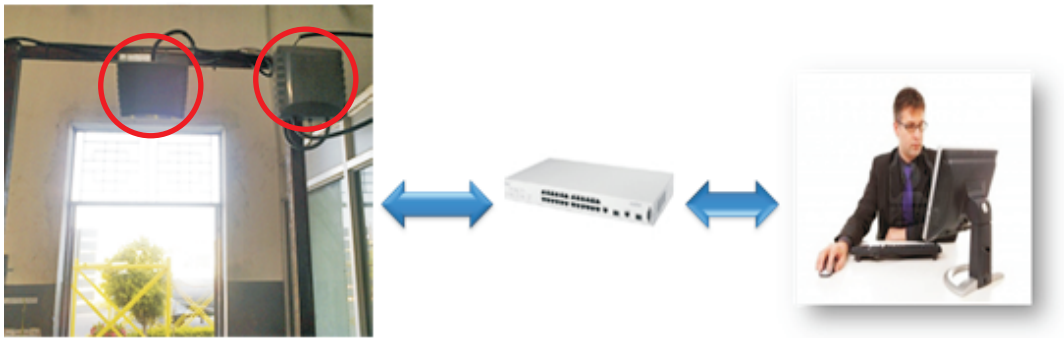
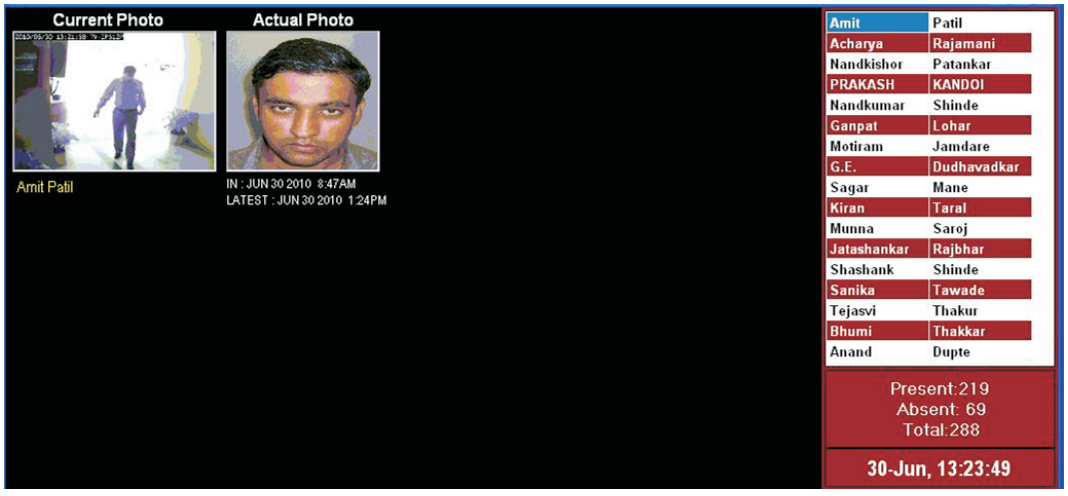
4. The Location Master contains location details for each Xtenna Hybrid™ device and their assigned IP addresses.
5. All employees are registered and their details entered into the tracking system through the Employee Master.
6. A Xtenna Proximity™ reader device is utilized to assign a PERSONNA™ RFID tag to each employee in the database. The tag is embedded in the employee's ID card and issued to him/her.

7. Each employee entering the company premises must wear the ID card containing the PERSONNA™ tag.
8. 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.



9. 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.



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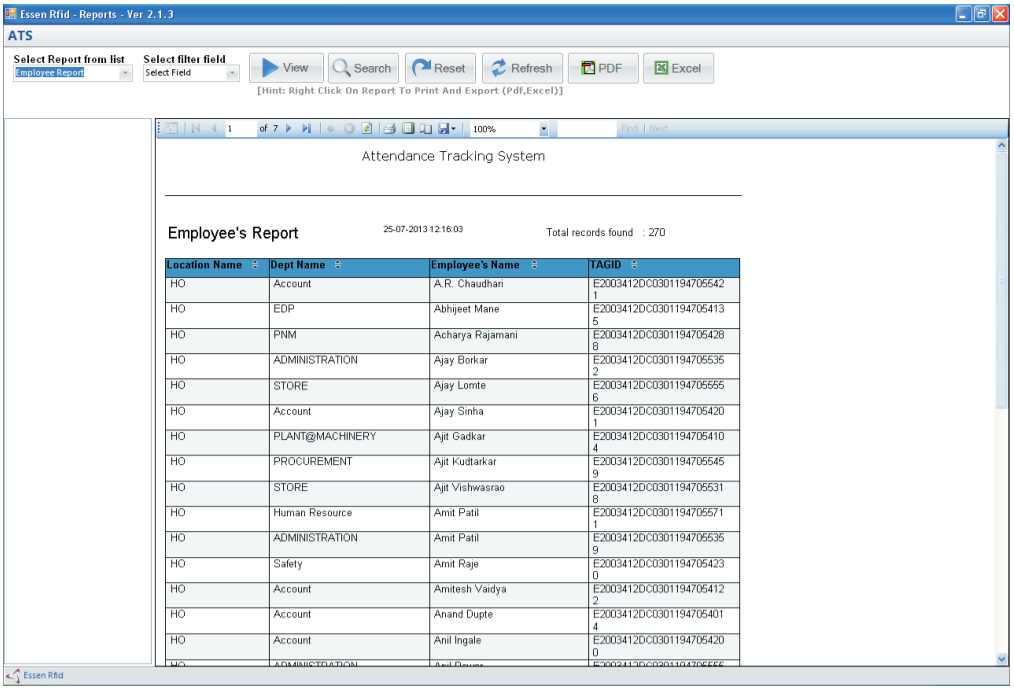
10. The reader device can individually read the tag IDs of multiple employees simultaneously entering the premises and log in their attendance.
11. Any employee that is absent is automatically marked as an absentee in the tracking system.
12. Employees leaving from the OUT gate are read by the Xtenna 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.



Location Name	Dept Name	Employee's Name	TAGID
HO	Account	A.R. Chaudhari	E2003412DC0301194705542 1
HO	EDP	Abhijeet Mane	E2003412DC0301194705413 5
HO	PNM	Acharya Rajamani	E2003412DC0301194705428 8
HO	ADMINISTRATION	Ajay Borkar	E2003412DC0301194705535 2
HO	STORE	Ajay Lomte	E2003412DC0301194705555 6
HO	Account	Ajay Sinha	E2003412DC0301194705420 1
HO	PLANT@MACHINERY	Ajit Gadkar	E2003412DC0301194705410 4
HO	PROCUREMENT	Ajit Kudtarkar	E2003412DC0301194705545 9
HO	STORE	Ajit Vishwasrao	E2003412DC0301194705531 8
HO	Human Resource	Amit Patil	E2003412DC0301194705571 1
HO	ADMINISTRATION	Amit Patil	E2003412DC0301194705535 9
HO	Safety	Amit Raje	E2003412DC0301194705423 0
HO	Account	Amitesh Vaidya	E2003412DC0301194705412 2
HO	Account	Anand Dupte	E2003412DC0301194705401 4
HO	Account	Anil Ingale	E2003412DC0301194705420 0

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.

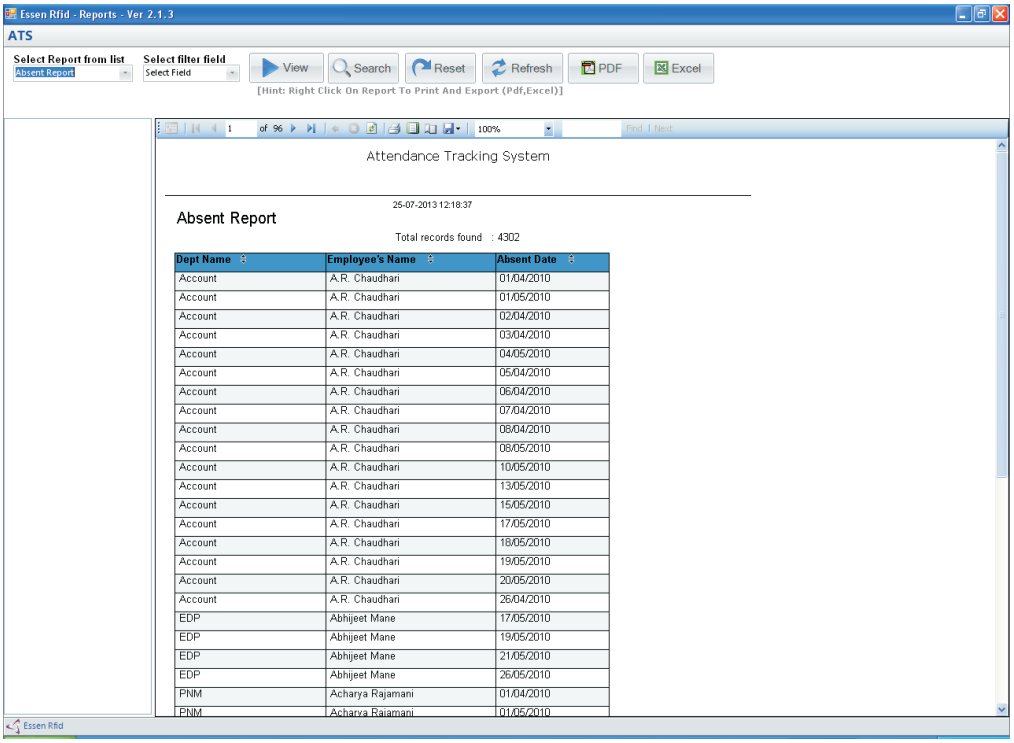
25-07-2013 12:16:32

Employees Not Registered

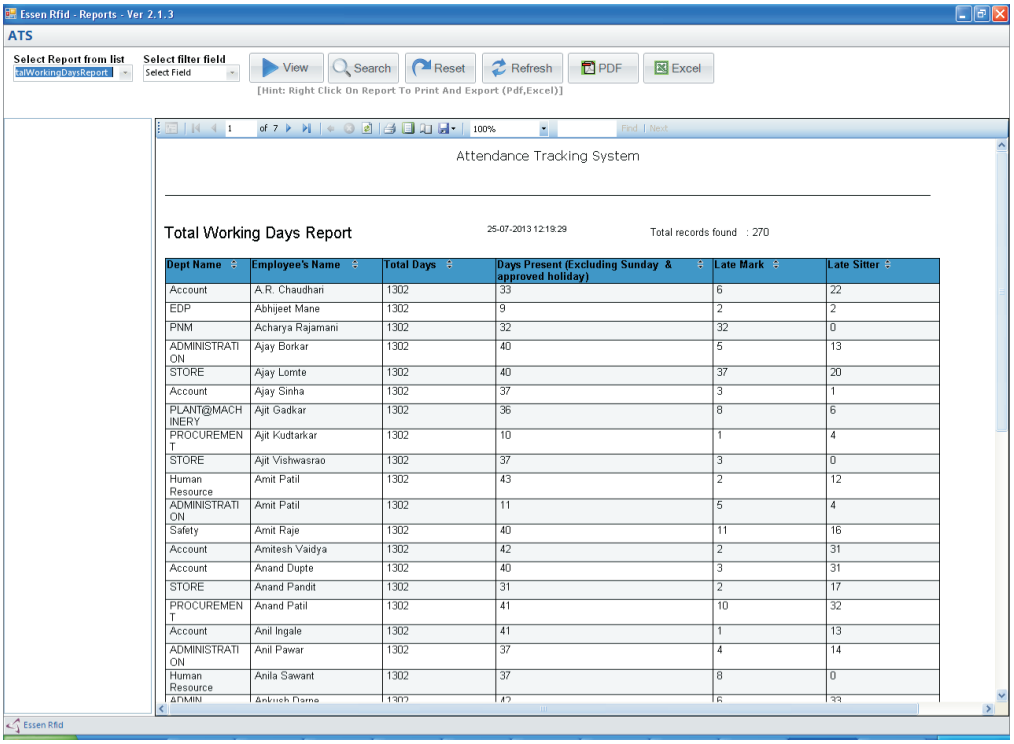
Total records found : 3

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

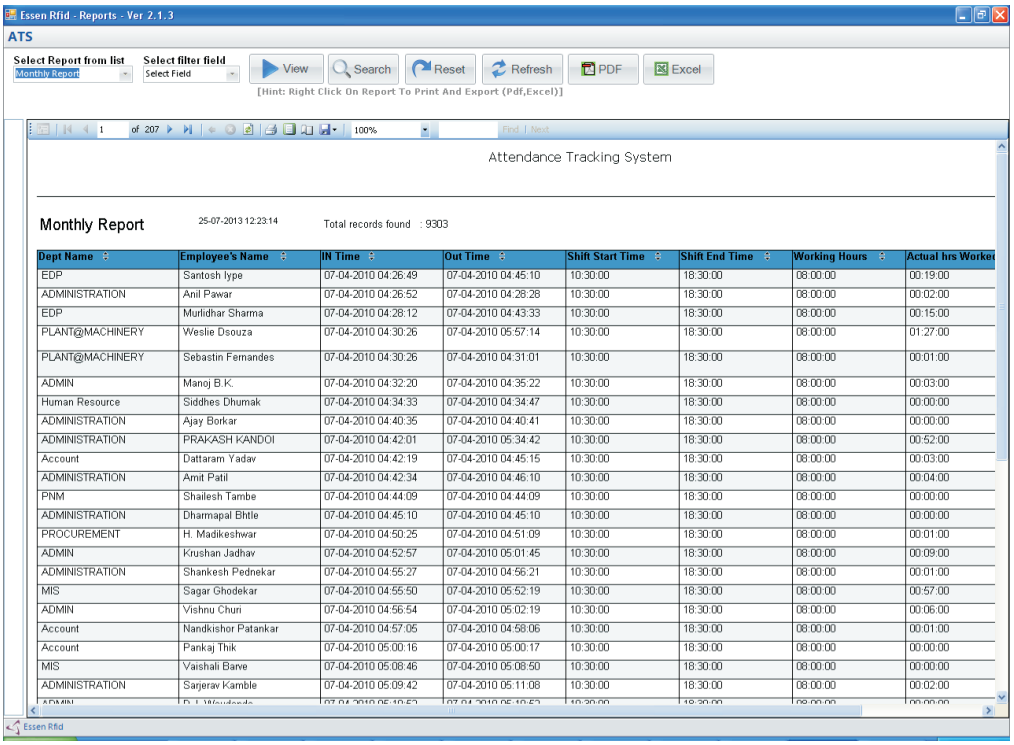
Absent Report: A duration can be selected by entering the From and To dates to generate a list of absent employees during that period.



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.



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.



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 04:28:28	10:30:00	18:30:00	08:00:00	00:02:00
EDP	Murlidhar 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 Bhtle	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	Krushan 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	Vishnu Churi	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 Barve	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	Sarjerav 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.

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:

Xtenna Proximity™

Xtenna Hybrid™

Tags:

PERSONNA™

Software:

Xtenna WebToolkit™

Xtenna Studio™

Reference Example:

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