SERVICE CALL AUTOMATION SYSTEM

By John Rowe

'Call Authenticate and Locate' - CAL Tag

Need help? Push the call button and wave your ID badge. Service call initiated!

Directed by a map on a smart phone, the CAL Tag will guide a technician strait to the problem.

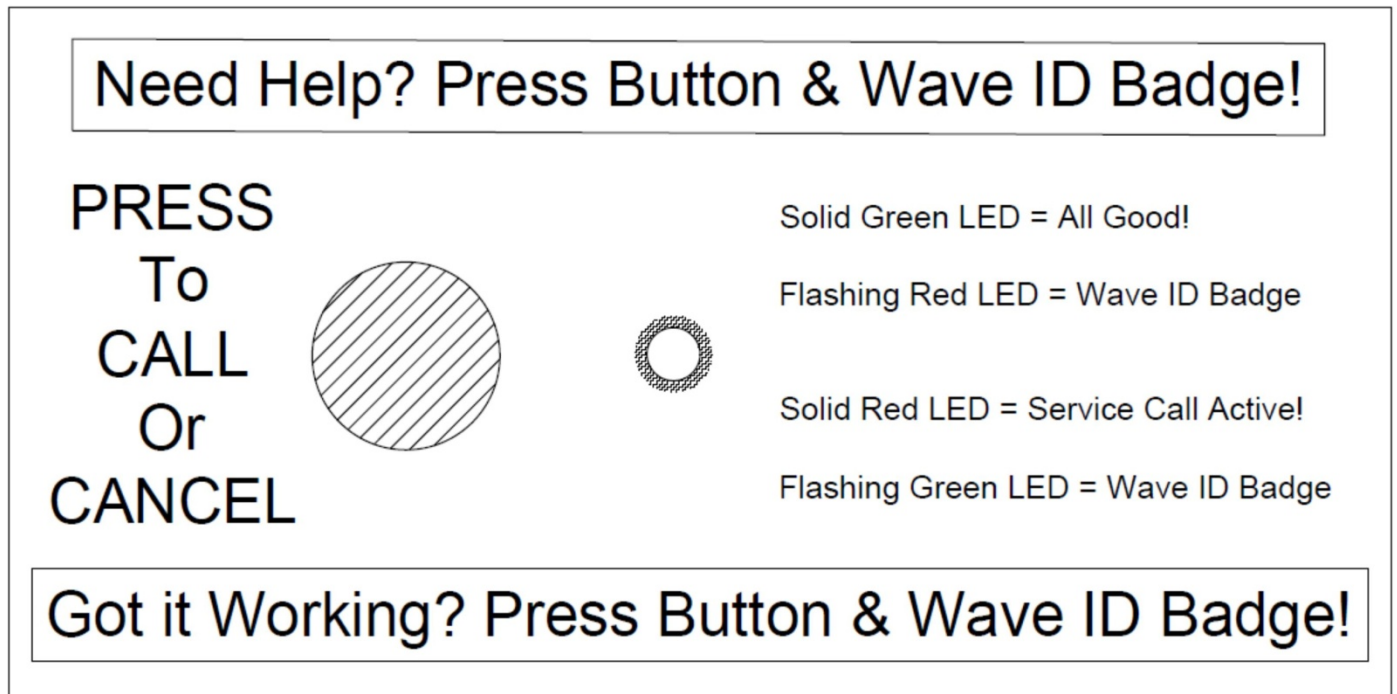This system makes your existing WiFi network into an Internet of Things (IOT) Real Time Location System (RTLS).

Illustration of the CAL Tag

Approximate Size:	3" x 6" x ½"
Status LED:	Solid Green = 'All Good', Flashing Red = Wave ID Badge
	Solid Red = 'Service Call Active', Flashing Green = Wave ID Badge

The CAL App will:

Generate new service call tickets based on device location, and user identity.

Identify the user's name, department, etc. via the wave of their ID badge and a database lookup.

Provide a graphical map showing all CAL Tagged devices and their present state. Green: good, Red: service call active.

Open, track, and close service call tickets in databases like Help Star and Miracle, etc.

In the near future, this technology will be built into devices such as printers, workstations, etc.

CALL AUTHENTICATE LOCATE TAG

Technical Specification - By John Rowe

Part 1 – The CAL Tag

Add the ID badge reader used for building access and computer login at many hospitals, etc. into an existing RTLS tag with a call button and one status LED. Each CAL tag will be attached to, and associated with a specific piece of equipment or asset, such as a printer or computer terminal.

A simple IoT (Internet of Things) RTLS (Real Time Location System) tag with a call button plus a RFID Badge reader and one status LED. Or, a Call, Locate and Authenticate tag, or CAL tag.

Two State RTLS Tag:	State 1 – 'All Good', State 2 – 'Service Call Active'
Call/Cancel Button:	Button push initiates State 1 & 2 change(s), after authentication the state changes from 'All Good' to 'Service Call Active' & back
RFID Reader:	Users wave their RFID Badge to authenticate service call requests and cancelations. Based on RDR-6082AKU pcProx Model 125 kHz RFID Reader
Authentication Module:	Confirms via a database the user is authentic and associates the user's contact info with the service call request in the App's database
Status LED:	Solid Green = 'All Good', Flashing Red = Wave ID Badge Solid Red = 'Service Call Active', Flashing Green = Wave ID Badge
Wi-Fi Standard:	802.11n or 802.11ac
Two State RTLS Beacons:	1. 'All Good' blink rate adjustable: 1 second - 60 minutes 2. 'Service Call Active' blink rate adjustable: 1 second - 60 minutes
Programmable:	SSID, Security Key, Unique ID #
State 1:	'All Good' (Solid Green LED) Button pushed - Authenticate User (Flashing Red LED) No valid RFID Badge Waved in 60 seconds – User is not authenticated LED changes back to Solid Green Valid RFID Badge Waved – User is authenticated
State 2:	'Service Call Active' – The App emails the help desk, user, etc. (Solid Red LED) A Service Call Request ticket is created in the App's database

Button pushed - Authenticate User (Flashing Green LED)
No valid RFID Badge Waved in 60 seconds – User is not authenticated
LED changes back to Solid Red

Valid RFID Badge Waved – User is authenticated (back to State 1)
Changes 'Service Call Active' status back to 'All Good' and closes the
Service Call Request ticket within the App's database. The App emails
the help desk, etc.

Ability to: Change State(s) via the App

Demo version CAL tag:
Create a demo version of the tag that illustrates the proof of concept.

Demo version App:
A generic floor plan showing devices equipped with CAL tags with a status of 'All Good' in Green,
and other devices with the status 'Service Request Active' in Red. The ability to change the status
from 'All Good' to 'Service Call Active' and back on one of the devices by pushing the button and
waving a RFID badge on the demo CAL tag.

Also, the ability to send example device status email(s) to participants of the demonstration when
changing the State(s) of the CAL tag would be very illustrative and useful.

Actual Install: Use existing and or install new Wi-Fi Access Points throughout the hospital's
facilities to create a IoT (Internet of Things) Real Time Location System (RTLS).

Part 2 – The App

Create a GUI / Smartphone app that will interface with Service Pro (and other existing databases)
and will generate new device service call request tickets based on location using the CAL tag. This
new system will be used to open, track, and close service call tickets in several databases
simultaneously.

During normal operation the CAL tag's LED will be green indicating there is no problem with the
device or asset. Then when a problem occurs and the CAL's Call/Cancel button is pushed the
status LED will flash red signaling the user to wave their ID badge to authenticate the service
request. Once the user has been authenticated (within a specified timeout period) the CAL tag's
status LED will change to solid red indicating the device is down, and a new Service Call ticket has
been generated, and emails have been sent to the help desk, asset support team and the user
with instructions for the user to reply to the email providing more information indicating the exact
problem they are experiencing with the device. This email can also contain steps the user can take
to help solve the problem on their own if they have time.

Then the Service Call support technician will have all the info they need to bring the correct parts
and or consumables needed. Furthermore, they will be guided on a map by the app on his/her
smartphone to the exact location of the asset and or the user that needs support.

Then the Service Call ticket will have all the information needed by all parties. If the help desk solves the problem or determines the Service Call team is not needed, a new email or notification via smartphone app will keep the Service Call team and others up to date.

Furthermore, if a Service Call support technician just happens to be in the area when a new ticket is generated, they will be notified instantly via smartphone app indicating the location and distance from their present location so they can quickly respond and check out the problem even before the user fills out the ticket problem details (or they walk all the way back to their office).

Conversely, if a user is able to solve the problem on their own, they can press the Call/Cancel button on the CAL tag again, the status LED will change from solid red to flashing green signaling the user to wave their ID badge to authenticate the change in status. Once authenticated, this action will close the support request ticket. Then the status LED on the CAL tag will turn to solid green indicating all is well with the asset and no tickets are open.

Technical Note:

The manufacturer and model number of the ID badge readers being used by CHOMP at this time:

Manufacturer: RF IDeas
Web site: www.RFIDeas.com
Reader: RDR-6082AKU   pcProx Model 125 kHz – USB interface
Keyboard/Reader: Same reader as above built into a keyboard – USB interface