FastAlert**TM**

**Overview:**

FastAlertTM is a cloud-based Safety Monitoring System that is designed for use by Senior citizens, neighborhood watch applications.

**Product description:**

The system includes a smart watch with app, smartphone app and communication to the server is via the user’s smartphone app & web application.

**System Key Features:**

1. Text and email alerts for ‘Help’, ‘Impact’, ‘I-AM-OK’. And ‘Failure to Check-in’.
2. GPS tracking
3. Check-in timer (user enabled/disabled).
4. Accountability - Log of all communication from user and from cloud.

**Block Diagram:**

**App :** https://m.apkpure.com/vn/instaalert-v2/com.ayantra.instalert



**Detail Description:**

This solution has 3 components: cell phone with app, smart watch with app and website.

Requirements for watch are:

**Hardware Features:**

1. BLE version 5.0
2. 1.3-inch display
3. Hear Rate monitor
4. Temperature Monitor
5. Oximeter
6. G force sensor
7. Re-chargeable battery
8. Wireless charging
9. Battery to last 2 weeks on one full charge
10. Vibrator
11. HELP Button
12. I-AM-OK button
13. All messages customizable
14. Battery level
15. Bluetooth Connectivity status
16. Date & Time display.
17. Ability to customize a 2- line display to reflect OEM logo image
18. Water protection: IP 67

Types of alerts:

1. Help Alert
2. Impact Alert
3. Failure to Check-in
4. I am OK

Note: If tracking is enabled then multiple alerts are sent according to specified no. of alerts & interval.

**Screens:**

Following are some of the reference screens:

These are just sample screens just to indicate what information is required on screens.

Common things to display on screens:

1. OEM Name
2. Battery level
3. Bluetooth status
4. Time display: It needs to be accurate

Default screen time off: 15 sec

Screen will be switch ON:

1. On raising hand
2. Using power button

|  |  |
| --- | --- |
|  | **Help & I AM OK**   1. Help & I AM OK screen is default screen for watch app when there is no alert. 2. To send help user needs to press & hold Help button for 3 sec. 3. When user is pressing button, progress bar will be shown around Help with Red color increasing around it. 4. Apply same logic as Help for ‘OK’ button. 5. Watch will vibrate when alert is sent to cell phone app. 6. This alert is sent to cell phone app right away when requested. |
|  | **TEST**   1. When user will pair the watch by clicking on Pair button, cell phone app will send packet to watch app to display TEST screen. On receiving packet watch will vibrate to indicate connection. We need to know the content of the packet. 2. When user will raise hand to look at watch or already looking at the watch or switch on the screen then show Test screen. If user doesn’t take any action & watch screen goes off then next time this screen will not be shown. 3. To ‘Test’, user needs to press & hold Test button for 3 sec. 4. When user is pressing button, progress bar will be shown around Test with White color increasing around it. 5. This alert is sent to server right away when requested. 6. Watch will vibrate when alert is sent to cell phone app. |
|  | **Temperature, Oxygen & Heart Rate**   1. When user comes to screen then start taking readings after 3 sec. 2. Default screen time off will not be applicable here. It will depend on time required to get readings. 3. Show wait screen/progress until watch gets readings. Then onwards continue to take readings & display it as long as user is on the screen. |
|  | **Pair watch**   1. No navigation (Forward, backward) will be available. |
|  | **Watch battery low**   1. On detection, watch will vibrate & every time when watch screen will be powered on this screen will be shown for 5 sec. 2. This alert will be sent every hour to cellphone app then cellphone app will send local notification. 3. Watch will vibrate when alert is sent to cell phone app. |
|  | **Charging**   1. While charging show this screen for 3 sec. when watch screen is ON then show HELP screen. 2. Progress bar will be shown around with White color increasing around it. |

**Alerts Screens:**

|  |  |
| --- | --- |
|  | **Impact Alert**   1. Cell phone app will send values to watch app, required to detect impact like High peak, no movement period & low peak value. For testing purpose, use High peak: 2.5g , No movement: 3sec, Low peak: 2g 2. High peak: Initiate Impact algo. & Low peak will be the end of the algo. & then Impact will be displayed. 3. On detection, watch will start vibrating & send impact detection packet to cellphone app. 4. Watch app will give 30 sec to user to cancel it. To make user aware of this 30 sec, watch will keep vibrating. 5. During 30 sec, watch app will keep showing this screen. 6. Watch will vibrate when alert is sent to cell phone app. 7. User can press button ‘Impact Detected’ button to send alert right away. Or cancel alert by clicking on Cancel (‘X’) button. 8. In any case i.e Cancel, Help or no action (considered as Help) within 30 sec, watch app will send appropriate packet to cell phone app. 9. Action on this alert can be taken from cell phone app & watch. 10. Action taken by user will be updated on both, cellphone app & watch app to keep both in sync. |
|  | **Failure to Check-in**   1. User can set 2 checkin check-in timers using cellphone app. 2. Using watch app, user can do check-in. 3. When check-in timers are set on cellphone app, it will be communicated to watch app. 4. Watch will start vibrating at check-in time & will continue to vibrate 5min after check-in time until user does check-in. 5. During this time if user opens app (watch or cell phone) in then app will show Check-in popup. 6. If user check-in within time then check-in timer will be continued else it will be stopped. 7. In case of check-in failure, alert is sent to cell phone app & watch will vibrate. 8. As user can do check-in from watch or cell phone, action will be communicated to other end to keep both the devices in sync. |

Note: On 1st screen right swipe will show last screen & on last screen, left swipe will show first screen.

**Other Notifications:**

1. Heartbeat
   1. On pairing watch with cell phone app, watch app will start sending heartbeat packet at the interval of 5 min.
2. Tracking
   1. Tracking can be enabled/disabled using cellphone app. User can configure interval (1 minute to 30 min) & total no. of tracking messages.
   2. In that case when alerts like Help, Impact, Check-in failure etc. occurs, tracking messages will be sent to notification contacts.
   3. When user will enable this feature, cell phone app will send this information to watch app.
   4. On alert, watch app will send tracking packet to cellphone app.
   5. Whenever alert is occurred tracking will be restarted.
   6. When user will press ‘I AM OK’, on watch or cellphone then watch app will stop sending tracking packets.

**Flow chart of watch app:**

HELP & I AM OK Screen

Home screen

Temperature, Oxygen level, Heart rate Screen

Watch disconnected from Phone Screen

Impact Alert Screen

Time to Check-in Screen

Test Screen

Battery Low Screen

Charging Screen

Questions from Zien Solutions:

1. When do you want the device to display the Ayantra and customer’s logos? We plan to display it when the device is powered up but this device will not be shutdown unless the battery is completely drained. That means user will rarely see the logo. The name is text will always be there. Is that OK? There is another option. We will display everytime the bootloader starts in the watch by pushing the button for 7 seconds. However, because there is no way to download the watch software from the phone app now, we will have to disable this feature (see item #4 bellow for more information on this).

Ans: Display logo when device is powering ON for at least 5 sec. with some progress/booting animation.

1. Please specify the conditions for “when user raises hand to look at watch” in relation to the data from G-force meter. This is very difficult for us to implement correctly especially when user can look at the watch from different positions.
2. How can we detect when user raise hand to look at the watch? User can be in different positions besides standing.

Ans: Watch screen will be powered on if user raises the hand or when power button of watch is pressed.

X,Y, Z axis values should be more than 1.2g and then be less than 1.1 g for 3 seconds.

Formula: SQUARE ROOT OF ( X2 +Y2 +Z2 )

More experiment is needed to finalize values.

1. Ashok said that Ayantra will provide us with the algorithm to detect falling. He did send a link to an article but there is no algorithm there. Do you have it?
2. We need the algorithm to detect impact or fall.

Ans: Refer alert screen details for ‘Impact Alert’. Values will be set in phone app & phone app will send them to watch app.

1. How can we download the watch app from phone app? This feature is not available on phone app today. This is a critical feature otherwise we can never upgrade the watch app.

Ans: Watch app should be upgraded using wireless charging device only. Wireless charging device will be connected to PC using USB. Since the watch is waterproof. This is an essential requirement

1. Temperature, Oxygen level, Heart rate Screen: Can we improve this screen?? It looks bland and doesn’t match with others.

Ans: Please feel free to make it look better. Request submit changes for approval.

1. SpO2 is not available on this version of hardware. The next version of hardware to be released in Feb2021 will have it.

Ans: OK.

1. Pair watch screen: Please explain how this feature works. What is the sequence?
2. Does this mean this screen will go away when the pairing is done? What happen when it fails? How long do we wait?

Ans: As long as watch is not connected with phone app this screen will be shown. Even if it is failing this screen will be shown as without pairing with phone app one cannot use watch app.

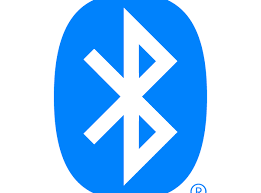
On pairing with phone app, this screen will go away & home screen will be shown.

On disconnecting, Bluetooth logo will be changed to show ‘loss of connection’ & on connection it will be changed to show ‘connection restored or pairing done’

On ‘Pair watch screen’: Display Watch ID.

Watch ID logic: Take last 3 bytes of MAC address & add ‘SA’ at the start of it. Eg: SA1F3B26

Something like below:



1. We don’t support wireless charging. Should we change it to just “Charging”?

Ans: Wireless charging is must as it is one of the must have features list. Wireless charging device will be connected to PC using USB.

1. There is only 1 timer on FastAlert phone app now. Please explain how this works.

Ans: 2 Check-in times can be set using ‘Check-in timer’ feature. Please refer FastAlert app. I am referring Check-in Time 1 & Check-in Time 2 as Check-in Timer 1 & Check-in Timer 2. I guess that created confusion. Sorry about that.

On setting Checkin times on phone app, these values will be sent watch. Then watch needs to keep track of Check-in Time & alert user. Detail description is given above in Alert section.

These Check-in Times can be switched off.

1. 5 minutes is too long and will drain some power from battery. We recommend cutting it down to 2 or 3 minutes.

Ans: 3 minutes is fine.

Questions from Ayantra:

1. Is it possible to display Logo image instead of Logo text that is present on all screens? Will it be properly visible?
2. Regarding RTC: Your reply is ‘phone app will need to send current time to watch to set clock.’ How frequently phone app needs to send time to watch app? When it will start showing wrong time after disconnecting? After Power Off & then Power ON will it show time?