

# **An innovative smart alarm for the present generation**

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**Abstract:** Developing an Android based application for an alarm clock using Android Studio IDE. The main feature of this application is to make the user move around and walk a few steps to turn off the ringing alarm. This will enable the user to forcefully wake up when the alarm rings preventing him/her from snoozing it repeatedly. It is specifically designed for students to help them reach morning classes on time without skipping breakfast. This will also benefit the working people to get up on time who have the problem of snoozing their alarm repeatedly.

**Keywords:** alarm, android studio, application development

## **1. Introduction**

In the olden days, people used to wake up hearing the crowing of the cock. Then came the physical alarm clocks and now due to the evolving technology people have shifted to the alarm clocks on their smartphones. The main drawback of smartphone alarms is that it comes with a snooze button. Due to this, people end up oversleeping. This has several repercussions like missing breakfast, getting late for work/ classes etc. This was the motivation to develop this app, which will make the user to wake up and move around to turn off the alarm.

Sometimes, it so happens that the user walks a few steps but is still not completely awake. In order to tackle this situation, a quiz feature is also implemented in the app. The user also needs to answer a few questions before the alarm can go off.

## **2. Language description**

To develop the android application - Smart Alarm – Java was used. Java is a language that is platform independent. It is used for general purpose coding as well as Android App Development. It is class based and object-oriented programming whose syntax is influenced by C++. The primary goal of Java is to be simple, object-oriented, robust, secure and high level. The code written in Java language in one machine can be executed in any machine.

The Android platform allows developers to write managed code using Java to manage and control the Android device. Android applications can be developed by using the Java programming language and the Android SDK. By using java, powerful and efficient applications can be created for mobile phones, remote processors, microcontrollers, wireless modules, sensors, gateways, consumer products, and practically any other electronic device.

## **3. Working and Flowchart**

The main intention of this application is to make the user wake up on time in the morning. The app is very user friendly. Upon opening the app, there is a time picker to help the user set the time for the alarm. Analog or digital themed time picker can be used depending upon the interest of the user. After setting the time, all that the user must do is press the toggle button to turn on the alarm.

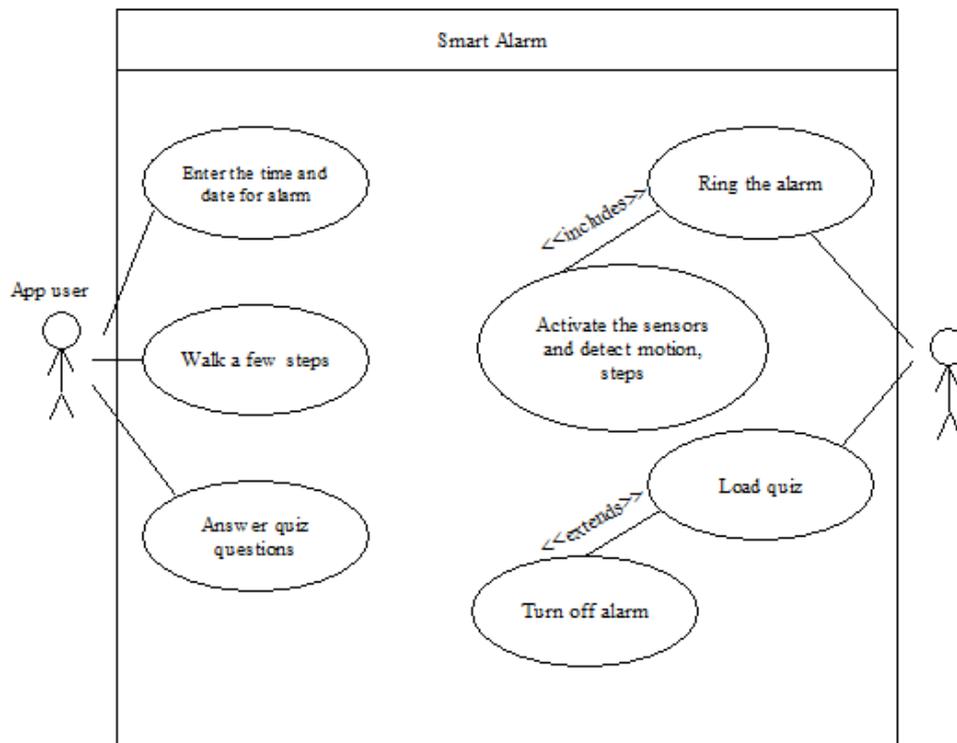
In the morning, when it is time, the alarm starts to ring. There is neither a button to snooze the alarm nor to turn it off. The only method to turn it off is to get up and walk a few steps. Accelerometer and step counter have been used to detect the motion. Sometimes making the user walk a few steps will not be sufficient. Hence, the user also needs to solve a few quiz questions. Only when these to actions are completed, the alarm will go off.

The product functions are as below.

Setting time: The user is given the option to set any time for his/her alarm and from the most comfortable time picking option i.e., analog or digital.

Answering quiz: Once the alarm starts to ring, the user needs to walk a few steps. Then he needs to answer a few questions to turn off the alarm.

The use case diagram is as shown in Fig 1.

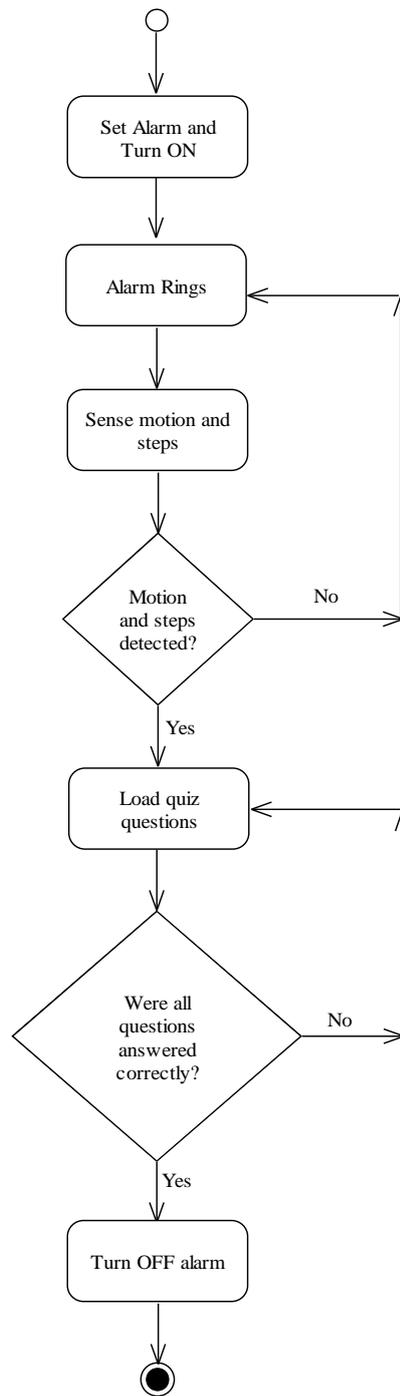


**Figure 1.** Use case Diagram

The use case diagram represents the different modules of the app controlled by different entities. The app user is only allowed to set the alarm time with date after opening the app. When the alarm rings he will be prompted to answer a few questions. All other modules are controlled by the app itself like ringing the alarm, loading the quiz questions, activating the sensors etc.

The activity diagram is as shown in Fig 2. It represents the sequence of activities that occur in the application. Upon opening the app, the user is allowed to set the alarm and then the control is passed to the application. There are conditions which must be satisfied for the alarm to go off. The user must

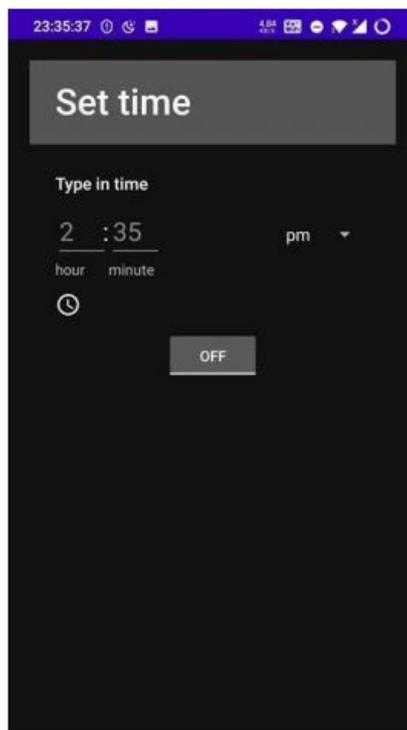
walk a few steps when it rings and answer all the quiz questions correctly. Not completing either of the two results in the alarm ringing continuously.



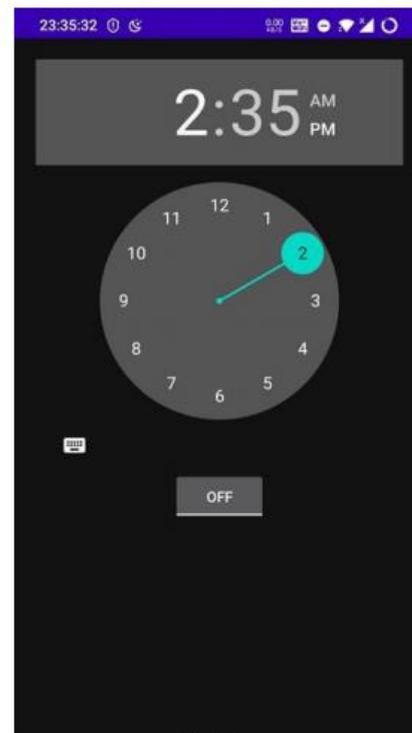
**Figure 2.** Activity Diagram

#### 4. Results

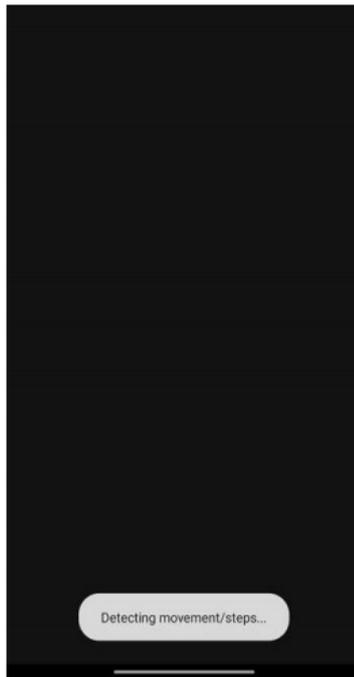
As this work is the development of an innovative smart alarm, this section includes the screenshots of the different steps. Figure 3 is the screen shots of the setting the alarm in digital/analog time picker. Figure 4 is the screen shots of detecting the steps and answering the quiz questions. The app is coded in such a way that the user must walk at least for a minute holding the phone in his hand before the quiz kicks in. In case the user fails to answer a question correctly, he/she must wait for ten seconds to attempt it again. After a few questions are successfully answered, the alarm stops ringing. Thus, the app is successful in its objective of making the user wake up on time without repeatedly snoozing it.



**Figure 3.** Screen shot of the setting the alarm in digital time picker



**Figure 4.** Screen shot of the setting the alarm in analog time picker



**Figure 5.** Screen shot of the detecting steps



**Figure 6.** Screenshot of quiz page

## 5. Conclusions

Waking up on time is very essential for the smooth functioning of our daily activities. In case we oversleep, it has several repercussions. For students, it might mean skipping the early morning class. For working professionals, it might mean, skipping a very important meeting, etc. In such cases, depending on the normal alarm app on the phone can be risky as the alarm can be snoozed indefinitely. It is in places like these, where SMART ALARM plays a vital role. It rings the alarm continuously forcing the user out of bed. Not just that, it makes the user answer a quiz that completely awakens him/her. This app is a must have for all those who have difficulty in waking up in the mornings.

The future scope of this work is this app can be linked with some motivational words or speech which will give some positive thought for the day. It can also be linked to the Google assistant to inform the user about the weather conditions and his tasks for the day which he had entered in the Google calendar. This will give a head start to begin the day with a positive note.

## 6. References

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