AutoDroid: Task Automation app

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1. MOTIVATION

How would you feel if your phone sends a daily weather and air quality update of your office area? Or your phone gets silent automatically at your sleep time and gets to ring when you wake up ? Or your phone understands your gestures and reacts? What if music stops when you give signal with your hand? We hope you feel more powerful by automating usual tasks and saving time. We will present an android app that can automatically accomplish these tasks easily and make your life easier. We are inspired by the fact that smartphones are called smart for a reason and by taking this fact in consideration, we hereby propose a task automation app which allows the user to make various customizations in his/her smartphone such that the user has to put minimum efforts. It is tiresome to perform monotonous routine tasks on a daily basis. We try to help the user get rid of this feeling through automation. The user need not juggle through several apps and can play by his own rules. There exist multiple apps for various activities but sometimes the user requires to work hand in hand between two or more apps together. So, we provide the user to utilize such functionalities just one click away. Through our app, we will provide the user automation of the tasks which he/she performs. Like showing Air Quality Index along with weather at the Homescreen, a quick lock floating button, showing step counts, scheduled motivation and reminders and much more.

2. PROBLEM STATEMENT

AutoDroid promises to deliver a smooth user experience. Some automations are general in use, while some are better when personalized. This app offers both inbuilt and customizable automation features.
AutoDroid address the need for automation of time-consuming or boring tasks in daily life of users and offer several automated features for the same.
Our app features functionalities such as updating about weather and air quality index of nearby place, automatically turning music on and off when shown signal with hand, enabling silent/ring mode on scheduled time, alert on the overuse of particular apps, schedule messages for birthday wishes, perform the task on Phone gesture, showing step counter, automatically backing up the photos by uploading to drive, etc.

3. RELATED WORK

There exists some automation apps like Tasker, IFTTT (IF This Then That), Automate which monitors context and performs tasks based on them.

- **Tasker** : an Android application which performs tasks based on time date location event and gesture to autoamte certain tasks. Features are manually created by the user to perform task which makes it hard to serve the purpose of automation.

- **IFTTT** : yet another automation application derived its name from if this then that. Application lets user create command to perform task which gets overwhelming.

These applications require input in a special format. For example, Automate requires the user to enter the automation task represented in a flowchart. This curtails down the user base as not all users might be knowing about flow charts.

4. FEATURES PROPOSED

- **Alert on overuse of particular apps** - SmartPhone Applications have conditioned users to use them on daily basis to get happiness. But research shows that overuse of these application may lead to depression, insomnia and addiction. Hence it is very important to limit the overuse of the applications mostly consumed on daily basis. Our App provide a means of statistics of user active time on the application Perday, provide a notification when the user set limit is exceeded.

- **Determining Air Quality Index and weather** - We live in the world now where the atmosphere air is contaminated leading to lung diseases. Therefore it gets utmost importance to check the surrounding air and take precaution. Our App Provides a suggestion for the user on day to day basis of the surrounding air. Also provides widget on the home screen which gets updated air quality index and temperature.

- **Schedule messages for birthday wishes** - Our App Provides feature to schedule sms ahead of time for user to send. It is possible that user might forget date and message to send, hence this features will help those whose forgets the date more often.

- **Launching a music app on insertion of jack** - User can choose to automatically open a certain music

app if installed in the user's smartphone on insertion in the jack.

- **Upload photos to Drive on single click** - For preserving memories, we propose a feature that will automatically backup the photos on the daily basis to user's google drive.

- **Task on Gestures**- For making the life simpler and better for the user we propose to perform some specific task on users gestures, so as it to save users time and efforts. There are always some specific tasks that we wish could be performed even when your phone is locked like turning torch on for emergency or setting phone to silent mode.

- **Set mobile to Silent Mode and Ring Mode on schedule** - Most people keep their phone on silent while going to sleep or to work so that they are not distracted, its redundant task to perform manually. We propose this feature that will automatically put the mobile in silent mode or in general mode on scheduled time as described by the user.

5. FEATURES IMPLEMENTED

- **Alert on overuse of particular apps** - For this task we used alarm manager to schedule an alarm according to the timer set to the apps. Which gives notification of the apps which gets exceeded.

- **Determining Air Quality Index and weather** - For this task we used AirVisual which provides Api to query for the air quality of some place or for nearest city. Also gives suggestion according to the air quality.

- **Schedule messages for birthday wishes** - For this task The user can schedule customised or inbuilt messages for birthday,anniversary or any other special occasion and we will automatically send wishes through SMS on the date set by the user every year.

- **Upload photos to Drive on single click** - For this task The user can enable this feature in order to have a backup of local photos in his/her phone. This feature will automatically upload the photos from the previous day into Google Drive inside a folder.

- **Voice-based Daily motivation on schedule** - The user can enable this feature to get voice-based motivational quotes at a specific scheduled time of the day daily.

- **Voice-based Daily Reminders on schedule** - The user can enable this feature to get voice-based user task reminders at a specific scheduled time of the day as set by the user.

- **Step counter** - For this feature used Step Detector sensor and Step Counter sensor to count the step taken. Also calculates the distance travelled.

- **Floating button for Quick Lock** - For this task we created a floating widget which will act as the floating button to the user for quick lock.

- **Handless Pause for Playback** - Using accelerometer sensor, we identified shake in three directions and assigned a particular task to each of them. Also we used proximity sensor for pausing audio/video just by showing hand infront of the screen.

- **Silent on Gesture** - The user can enable this feature in order to turn the phone mode to silent on the certain gesture shake as specified through animation by AutoDroid.

- **Bluetooth on Gesture** - The user can enable this feature in order to turn on bluetooth on a certain specified gesture shake as specified through animation by AutoDroid.

- **Flashlight on Gesture** - The user can enable this feature in order to turn on flashlight on a certain specified gesture shake as specified through animation by AutoDroid.

- **Set mobile to Silent Mode and Ring Mode on schedule** - For this task we take input as time using timepicker in android, and set a scheduled broadcast which will repeat itself in every 24 hours till users switches it off. Inside this broadcast we perform the task of turning phone to silent mode and ringer mode using audio manager in android.

6. CHALLENGES FACED

Automation is a not an easy task in Android especially with frequent changes in Android development. We attempt our best in order to automate time-consuming or boring tasks experienced in daily life by the users. The major challenge faced was the deprecation of certain modules in Android which created an imbalance of features among various versions of Android. Another challenge faced during the application was accessing phone's inbuilt settings and features. Automation in every day life can make our lives easier and smoother but as of now it seems that uniformity among versions can be improved further.

7. FUTURE WORK

In the Future, we plan to implement touch-screen hand gestures wherein different customised gestures can help the user to automate certain features of AutoDroid. We will try to implement more features like on read real-time location and update user with voice updates about Air Quality. We will try to give user information about fitness will show and updated in real-time with voice reminders about the calories burnt according to steps count.