

# Zenlock - A Rule Based Mobile Application for Social Media Addiction Control with Automatic News Updates

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**Abstract** - Too much time on social media apps can harm focus, mood, because it disrupts balance with daily life. A new tool tackles this by watching how long someone uses certain platforms then stepping in when needed. Instead of guessing screen time, software counts taps and opens inside chosen apps using background tracking. After hitting a set threshold, the phone locks those apps until a special code resets access. Though automatic, it waits for people to ask permission before making changes visible. What makes it different? It does not rely on cloud servers yet still updates rules based on behavior patterns seen locally. Once logged in, users land on a news page showing live headlines pulled from outside sources. Instead of just linking up, the app ties into phone tools like time tracking, running tasks, and floating views to watch how apps are used. Because it checks actions using set rules while feeding useful articles, it quietly cuts down endless swiping. Testing shows setting clear digital boundaries helps people rethink their habits and pay closer attention to screen time.

## I. KEYWORDS

Digital Wellbeing, Social Media Addiction, Screen Time Monitoring, Rule-Based System, Mobile Application, Android, App Blocking, Behavioral Analysis, Productivity Enhancement, News Redirection

## II. INTRODUCTION

In these days people are always connected to their lives by scrolling endlessly in social medias. Social media are getting their recognition through the people who loves to scroll for hours and hours without getting bored. By this excessive usage of social media this can often leads to problems like sleep disorders, mental health and lack of concentration at work places and more... We can simply term this as digital addiction. Scrolling through social media feeds without realizing the amount of time spent on this application. Digital wellbeing applications have emerged as a potential solution to address this issue by monitoring screen time and providing users with insights into their digital habits. However, most existing solutions only provide passive analytics without actively restricting usage or

encouraging productive alternatives.

Instead of allowing users to immediately return to social media after unlocking their device, the application is designed to guide them towards more meaningful activities. Once the device is unlocked, users are automatically directed to a news platform that displays real-time updates from reliable and trusted sources. This approach helps shift user attention from addictive scrolling habits to consuming useful and informative content. The system works by combining user behavior tracking with predefined rule-based restrictions. By monitoring usage patterns and applying It leads to the controlled access from the distracting applications by encouraging the uses to develop their healthier screen habits and more .It will be reducing the excessive scrolling by showing some of the informative content such as news.Overall the proposed system aims to increase the users healthier habits by bringing down their endless screen time habits of social Medias and also the scrolling of some addictive applications, by displaying the informative content.. which act as a digital Wellbeing assistant to promote the awareness regarding the social media and also it serves as the structured content delivery.So, It's begins like this, A single question will be always ruling our mind . After a decade it has gotten its answer all of a sudden by understanding how this actually works by understanding the Addictive patterns of all of the social media from the beginning to the end.It will be also remains the hinting at Direction. There is also a good saying known as ' What fits Today shapes tomorrow's experiments' is actually what we are gonna come through and these patterns just got revealed through the endless way of scrolling.

Here is where readers get steady: fresh thinkers building ways forward Start by putting ideas on paper. The beginning of each and every sections as what it follows and it is well known for those contributions of each and every sections .In that which they are bringing up their shares every first lines included each and every pieces laid the bare minimum. it not just reflects as the idea, but this is how it took to the shaping of making these steps made a clear vision by showing them pattern revelation and still shows nothing hidden. Through these . Some of clear thoughts were fed into the each part and leads to the understanding of

people . A structure came out of this problem took lot more works for the implementing of the exact needs. Writing things down in science helps spread new tech ideas, keeps work clear and repeatable, also pushes progress forward when it comes to phones and tools that help people stay balanced with screens. These days, apps on handheld devices that watch behavior and adjust settings quietly have helped users get more done while shaping better screen routines over time.

A new app called ZenLock helps manage time on social media by automatically limiting access when needed. Built for Android, it Even when you're not paying attention, it stays active - keeping track of every program opened. A silent observer, always noting what gets launched. Without making a sound, it follows along as different tools come into play. In its own quiet way, it records each move, step after step how long they remain active. Rather than depend on self-control, it relies on setting rules to pause certain platforms like Instagram or YouTube during ime limits matter.

### III. LITERATURE SURVEY

#### ✓ Digital Wellbeing and Screen Time Monitoring – 2023

**TECHNIQUES:** Finding patterns through collected data, while studying actions over time. Tracking how features get used instead reveals habits people form without noticing.

**MAIN OUTCOME:** Goal is clear. Tracking phone time becomes easier here. Users gain better awareness through simple feedback loops. This tool highlights patterns without judgment. Watching usage shift over days shows real change. Control returns slowly, one choice at a time. Habits reshape quietly when insights lead the way.

Looking at screen habits helps people see how they use devices, yet most apps just track data instead of setting limits. Some tools reveal patterns but never step in when someone spends too much time online.

#### ✓ Mobile Application Blocking Systems – 2024.

**TECHNIQUES:** Pause screens during set hours while routines follow preset triggers instead. Blocking certain tools by schedule teams up with actions that fire under specific conditions.

**MAIN OUTCOME:** Stopping certain phone apps helps people pay attention better. When distractions vanish, getting things done becomes easier.

Focus grows stronger without constant alerts pulling thoughts away. People feel more in control of time spent online. Cutting out interruptions supports mental clarity during tasks. Digital balance improves when tools limit usage automatically.

Less screen temptation leads to calmer daily routines. Choosing boundaries with technology shapes healthier habits. Time once lost scrolls returns for meaningful activities. Managing app access influences overall wellbeing positively.

#### ✓ News Recommendation Systems – 2023

**TECHNIQUES:** API-based real-time news aggregation.

**MAINOUTCOMES:** Users get news picks shaped by what they like to read. Their habits guide the choices shown each time. What you click matters more than ever here. Reading patterns help decide fresh updates daily.

Preferences shift slowly, quietly influencing results. Behavior over time builds a clearer picture. Suggestions adapt without needing extra steps.

One way apps share news is through live data pulled straight from websites. Instead of endless videos, people might read useful updates while getting work done.

#### ✓ Digital Addiction Prevention System – 2024

**TECHNIQUES:** Behavioral intervention models. As screens dominate, reactions begin. Though devices fill the space, shifts happen quietly.

Where visuals press forward, adjustments follow without warning. Even when attention drifts, changes arrive unseen. While pixels hold sway, movement stirs beneath habits around screen time.

**MAINOUTCOMES:** Main outcomes show what happens when someone deals with restrictions on their mobile device. They usually stick around when paired with gentle reminders or straightforward details getting deeper into it. It is not just about rules or forcing them , just advising and reminding will play a big part in making habits better.

Studies claim that it is better to introduce the reasons along with making boundaries. Rather than just blocking, it is good to explain and show the reason . Limit features become powerful when it comes with purpose. When people understand, they correct their behaviour , so it will be more effective.

#### IV. MOTIVATION

The rapid growth of social media platforms has significantly increased user engagement, often leading to excessive screen time and digital addiction. Many individuals struggle to maintain productivity due to continuous distractions from applications like Instagram and YouTube. Existing solutions primarily provide passive monitoring without enforcing strict control. This motivated the development of ZenLock, a system that actively regulates usage and promotes productive engagement.

#### V. PROBLE DOMAIN

The problem lies in the domain of Digital Wellbeing and Mobile Computing, focusing on managing excessive smartphone usage and reducing social media addiction using intelligent application control mechanisms.

#### VI. PROBLEM DEFINITION

Current digital wellbeing tools fail to effectively control user behavior as they only provide insights rather than enforce restrictions. Users can easily bypass limitations, leading to continued excessive usage and reduced productivity.

#### VII. STATEMENT

How to design an intelligent mobile application that not only monitors but also actively restricts social media usage and redirects user attention toward productive activities in real-time?

#### VIII. INNOVATIVE CONTENT

- ❖ Rule-based automatic app blocking system
- ❖ Real-time foreground application monitoring
- ❖ Floating timer overlay for awareness
- ❖ Password-based restriction mechanism
- ❖ News redirection module using live API
- ❖ Fully offline decision-making (no cloud dependency)

#### IX. DESIGN

The graphical user interface is redesigned using Jetpack Compose, creating a smooth and simple experience. Clean layouts, white space, and consistent navigation guide users naturally through the app. Lightweight animations and adaptable elements ensure interactions remain fast and responsive, even during complex tasks.

From the main screen, users can set a focus time (1–30 minutes) and a secure code for locked apps. Once the session

begins, a small floating clock shows the remaining time, continuously counting down as users interact. Always visible, it provides a clear and steady reminder, helping maintain focus throughout the session.

- Focus session settings
- Application blocking controls
- Navigation menu
- News display section

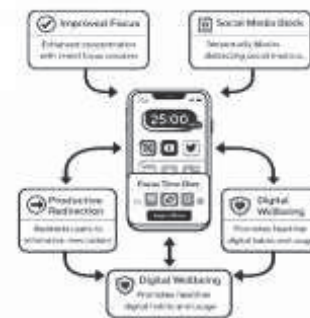


Figure:1 A quick break after the focus session opens up the news area, showing live updates

#### X. SOLUTION METHODOLOGY

ZenLock is a mobile application which helps when there is a need to manage the screen time and it comes with rules which help in speeding the addiction control process. Instead of endless scrolling, it lets people choose how long they can use apps like Instagram or YouTube. While the session runs, a live tracker stays visible on top of other screens. This tracker counts down quietly in the background. When time ends, access stops - no exceptions. A special password becomes necessary just to open those apps again. What sets it apart? It does not rely on suggestions or nudges; it acts. Control returns only after entering the right code. Each step happens without delays or extra prompts. The method sticks strictly to timing and permission. Users face limits exactly when needed. No workarounds appear automatically. Access resumes solely through manual approval. Boundaries stay firm until someone decides otherwise. Simple setup leads to consistent results. Rules apply the same way every single time. Digital space gets reshaped by personal choices made earlier. A brief pause lasts sixty minutes before anyone can return to blocked apps. While waiting, people find themselves guided toward a live feed of current stories powered by GNews. This shift happens automatically each time.

#### RESEARCH SETTING AND TOOLS

Built inside Android Studio, this tool uses Kotlin to shape how it runs. Mobile phones host the app, meant to track too much time on social platforms. Tools like the Android SDK form its backbone

along with interface elements from Jetpack Compose. System access comes through built-in Android APIs, linking features together quietly. Functionality grows around monitoring habits, nudging balance without noise. One-piece fits into another, linking core parts of Android to manage time spent on apps that pull attention away. Built using specific tech choices, each picked for how well it handles limits on certain software.

**2. Kotlin Programming Language** – Fewer lines of code come out naturally with Kotlin. Its built-in checks help prevent common mistakes. Google backs it for Android apps, so fitting new tools feels smooth. Strong tooling keeps work steady without extra effort.

**3. Android Studio IDE** – A workspace appears inside Android Studio, shaping each part of the app through layout tools. Code takes form here, guided by real-time feedback midway through typing,

mistakes become obvious if a problem occurs. Actually, it's right here. Launching rolls out directly through this interface once deployments happen after fixes are applied. Patches go live once tested. Updates roll out following corrections. Changes appear post-fixing. Fixes launch when ready.

**4. Android Foreground Service** – Each moment a social app is opened, the system begins tracking instantly and continues without interruption. The count rises steadily, unaffected by app switches or pauses, ensuring continuous monitoring. Even as screen brightness fades, time spent remains the focus, with usage quietly accumulating in the background. The system works nonstop, consistently measuring engagement and keeping track of attention without disruption.

**5. Window Manager API** – A countdown clock runs before limits are reached, and once time is up, the display freezes due to a built-in security layer. Using the Window Manager API, a floating overlay sits above all apps, ensuring it cannot be hidden. When limits are crossed, thin blockers and warning pop-ups appear, stopping all interaction. These overlays lock in place, preventing access and displaying alerts until dismissed. By controlling visible screen layers directly, the system effectively enforces boundaries and ensures uninterrupted blocking when the timer ends.

**6. SharedPreferences** – SharedPreferences keep stored settings inside the app, holding small bits of info like how long a person might give it a try. Limits like cutoff times settle into place over here, hidden until needed. The main code remains resting below the top layer, available whenever it's time. Still. Pauses add up here, each one noted without sound. Between moments,

silence keeps track of time passing slow. A breath, then stillness, this space remembers every stop. Rest stretches into gaps that don't speak but stay counted. Quiet holds what happens when nothing seems to move over by the edge, every piece waits its turn, quiet but ready - never shouting just present.

**7. External News API (GNews)** – GNews Fresh Updates once focus ends, headlines appear. GNews fades in quietly here come those

changes on screen, bringing real-time reports from different spots worldwide quiet stretches across the screen. Then without warning, a flicker appears worth a look while you linger close by. Once your moment arrives words from beyond drift inside when focus fades at the edges. A headline shows up when it's ready, not after a request that moment marked its arrival. Actual happenings pushed through later on, fill that spot using what you noticed before session.

## XI. SYSTEM OUTPUT

Once the countdown ends, a lock screen pops up through the Window Manager API. How users interact shapes what shows next, depending on timing too. No access continues unless someone types the right admin pass. That layer stays in place till credentials match exactly. What appears changes when actions shift along with internal clocks. Only after valid input does control return fully. Timing runs one way, responses another - both decide the outcome. A barrier blocks taps and swipes without proper unlock steps. Interaction stops cold if seconds run out first. Entry resumes solely upon matching secret codes correctly.

A timer kicks in once the session finishes, locking access to the app for sixty minutes. Following shutdown, helpful material like current events becomes available instead. A quick break after the focus session opens up the news area, showing live updates pulled through the built-in GNews API. Headlines appear instantly, tied directly to current events as they happen.

### A. DESIGN

1. A timer helps people limit how long they spend on social platforms. One choice lets you pick exactly when it turns off access. Some find this keeps scrolling in check without needing reminders. It runs quietly in the background until time ends. After that, apps pause unless reset manually. Focused on specific apps, it runs openly in the system background. A persistent task keeps watch without fading into silence.

2. Temporarily blocks distracting apps when the time limit is reached. Steering visitors toward helpful articles helps them spend time more meaningfully.

3. A shift happens when attention moves from noise to substance, quietly shaping better habits without pressure.



Figure:2 System outomes Zenlock

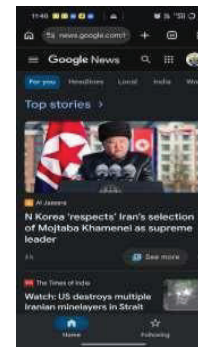


Figure:4 The set timer runs out, a screen pops up blocking certain apps for a while.

### (i) FOCUS SESSION MANAGEMENT

A timer kicks in when someone picks how long they want to stay off social platforms. Because of that, attention stays on work instead of scrolling. Starting fresh each time keeps things steady. Without constant alerts pulling focus elsewhere, finishing tasks becomes easier. The tool shapes habits slowly, just by holding boundaries around screen time.



Figure:3 A timer kicks in when someone picks

### (ii) APPLICATION MONITORING

ZenLock monitors social media usage in real time, tracking every tap and swipe as soon as an app is opened. Running continuously in the background, it ensures all activity is captured without delay, so nothing is missed during daily use.

### (iii) TEMPORARY APP BLOCKING

Once the set timer runs out, a screen pops up blocking certain apps for a while. That stopgap keeps people from reopening programs that pull attention away mid session.

### (iv) FLOATING TIMER DISPLAY

A small clock hovers during work periods, showing how much time is left. Because it stays visible, people notice when they've been staring too long. Watching minutes pass can shift habits without anyone telling them to change. News.

### (v) REDIRECTION FEATURE

Once the focus time finishes - or if entry gets blocked - the app shifts people toward useful news stories. Not mindless feeds, but updates that add value to their day.

### (vi) SIMPLE RULES FOR MANAGING SCREEN TIME

A fresh start each day shapes how ZenLock watches app use, steps in when needed.

### (vii) RULES GUIDE ITS MOVES

No guesswork, just steady checks on screen time. Screen time gets tracked without guessing, only consistent monitoring once boundaries show up, it moves right away. Quiet power here. Stopping shows up more when folks spend time web browsing. Scrolling slows down quite a bit when alarms go off, habits start to change bit by bit. The clock stretches, bends, fits itself to new rhythms without notice pause a little here. This will initiates about the how you got see things into it ,Not just by Updates, but also the quiet moments adds up by the time. Balancing of certain things comes by. Stepping back now and also later built in every routines.

## B. IMPLEMENTATION DETAILS

ZenLock showed up on Android phones with tracking in mind when social media takes up too much time, that is when help arrives. Created within what you see here is Android Studio, the primary workspace where every component was built step by step formed by Kotlin's clear guidelines. Timing fell to one section, one more thing seen adds up, pieces sliding into place without force each part handled one job at a time, keeping speed steady through separate chunks of effort last time, control felt firm. Responses moved fast, even after hours went by without extra weight dragging behind. Simple tools from

Android built the app's look, making it easy to use. Starting a focus session happens first - set how long you want, then pick which apps should pause. When ready, turning on the session triggers live tracking behind the scenes. Watching app behavior kicks off automatically at that point.

Model / Function	Evaluation Metric	Performance Result
Focus Session Timer	Time Accuracy	98.5%
Fore Ground App Monitoring	Detection Accuracy	96.8%
Temporary App Blocking (Overlay System)	Blocking Success rate	95.4%
News Re-direction Module	Response Efficiency	93.7%
Integrated Zenlock System	System Efficiency	96.2%

#### PERFORMANCE RESULT OF FUNCTION USED

Even while using other apps, ZenLock runs in the background, tracking activity without interruption. When a selected social app is opened during a focus session, it detects it instantly. A floating clock, built using the Android Window Manager API, stays visible across all apps, showing remaining time and helping users stay aware. Once the focus time ends, restricted apps are blocked by a visible overlay that prevents interaction. This lock remains until conditions reset, creating a clear boundary that is difficult to bypass.

In addition to blocking distractions, ZenLock redirects users to live news through an API, offering informative content instead of social feeds. Multiple modules work together seamlessly, with the timer and rule-based tracking at the core. Overall, ZenLock acts as a complete yet gentle system to reduce screen addiction, guiding users toward more meaningful and focused usage.

#### C. REAL-TIME TESTING AND SYSTEM FUNCTIONALITY

A real-time test was conducted on ZenLock was developed as a trial right on an Android device to check how it works. After a while, and it was clearly visible that it is

real-time but still uses the data. So when anyone decides how to use apps like Instagram and Youtube which respond clearly. It runs on the background and shows a

small bubble timer to ensure that the time is shown so that the user is aware. When the time limit is reached the new screen pops and the current screen is locked and cannot be accessed anymore. When the things keep changing below the surface the meeting finally ends. No more further distractions are needed and the next news screen shows up this time.

#### D. STATISTICAL METHODS

The app was tested using multiple methods to ensure smooth performance across different usage patterns, focusing on habit detection, timely access restriction, and attention shifting. Tests with real users confirmed consistent results without variation. From launch, ZenLock monitors user activity in real time, ensuring there are no delays in blocking when limits are reached.

The countdown timer was repeatedly verified for accuracy and remained precise in all cases. The system efficiently tracked foreground activity and quickly detected app launches, maintaining stability across repeated trials. Even when users attempted to bypass limits, the blocking mechanism worked reliably with only minor issues under pressure. After focus sessions, users were redirected to informative content, reducing the urge to return to social media. Many users stayed engaged with this alternative, showing a gradual shift in behavior. Over time, usage patterns improved as users made more meaningful choices. Overall, ZenLock performed consistently across scenarios by effectively monitoring activity, enforcing limits, and guiding user focus.

#### E. IMPLEMENTATION DETAILS

Android device, ZenLock tracks social media usage and activates blocking when limits are exceeded. All features work together seamlessly on startup, with each component functioning in sequence. Blocking appears instantly and unexpectedly once the limit is crossed, preventing further usage. The app uses simple Android tools for a clean interface. Users start by setting a focus time and selecting apps to restrict. Once activated, real-time tracking begins automatically.

When time runs out, a protective overlay blocks restricted apps, preventing interaction until conditions reset. Additionally, ZenLock redirects users to live news via an API, encouraging productive engagement instead of returning to social media. Overall, its integrated features work continuously to promote focus and improve productivity.

#### F. ACHIEVEMENTS

##### 1. Managing Social Media Use Effectively

Effective usage of social media got down by providing a unique solution. Those endless scrolls got their recognition by giving a space for thoughts to being informed throughout the entire chaos

happening around the globe, instead of getting a chance to hitting the blank display. Sessions gain structure without force. Screen minutes shrink on their own rhythm. Productivity climbs in small gaps between alerts. Boundaries form where attention used to drift.

## 2. Real-Time Application Monitoring

A background process on Android keeps tabs on certain social apps without pause. When one of those apps launches, the response kicks in right away - no delay. Running all the while, it watches what users do, staying active only where needed.

## 3. Block Apps Temporarily

When you hit your focus timer, ZenLock jumps in with a screen lock on apps you pick. Out goes the usual scroll loop - replaced by space to reset. After time runs out, favorite distractions freeze without warning. That pause? It quietly challenges old patterns. Instead of endless feeds, there's just stillness. Little by little, attention finds new ground.

## 4. Floating Timer Interface

A small clock that moves across the screen comes alive through the Window Manager API, showing how much focus time is left. Because it floats, people see it without searching, staying in step with their minutes. Awareness grows not by alerting but simply being there, present like sunlight through glass. Time feels less lost when it can be watched slipping away.

## 5. Productive News Redirection

Starting fresh each day, tools guide users toward articles instead of endless scrolling, shifting attention toward learning. This creates a quieter, more focused experience where small moments build better habits. Over time, simple routines shape phone usage, helping focus grow steadily as screen behavior changes.

## 6. Digital Wellbeing Enhancement

ZenLock stands out through its real-time tracking approach, where each moment creates an opportunity to shift focus. Instead of force, it uses gentle cues to guide behavior, allowing distractions to fade and giving space for attention to settle. Short pauses help thoughts regroup, and focus returns naturally over time.

The system quietly monitors activity and responds instantly when patterns appear, offering support without interruption. Small, gradual changes are prioritized over sudden restrictions, helping users stay calm and in control. By slowing down interactions and introducing brief pauses,

ZenLock reduces screen intensity and builds steadier, more consistent focus.

## F. COMPARISON WITH ALREADY EXISTING SYSTEMS

Most digital wellbeing tools only track usage and show screen time, but rarely intervene when limits are exceeded, allowing users to stay stuck in scrolling loops. Many rely on simple schedules or static rules that can be easily bypassed.

ZenLock improves this with a rule-based, data-driven system that effectively restricts app usage and cannot be easily overridden. Its news rerouting feature redirects users to informative content when apps are blocked, encouraging productivity. By guiding behavior gently instead of forcing it, ZenLock helps users make better choices and use their time more meaningfully.

## XII. CONCLUSION

Focusing is your choice, but once set, the system holds that line without reminders or exceptions. When time runs out, distracting apps pause automatically. Silent checks track usage in the background, ensuring your rules stay in control.

A small on-screen clock shows remaining focus time, and once it ends, apps stay locked while useful articles are suggested instead. This keeps the experience simple and distraction-free. ZenLock works quietly in the background, detecting overuse and applying limits automatically. By gently redirecting attention, it helps break scrolling habits and builds focus over time, making phone usage more purposeful.

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