

SIGSAFE - DIGITAL SIGNATURE VALIDATOR

A PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

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ABSTRACT

In today's digital age, prolonged screen time is a common issue affecting mental well-being. Many individuals spend extended hours using applications like YouTube, which can lead to digital fatigue and decreased productivity. This project addresses these concerns by developing an automated **Mental Well-being Break Reminder System** using UiPath.

The solution utilizes UiPath's robust RPA capabilities to monitor user activity, track screen time, and detect when specific applications, like YouTube, are active. By leveraging UI automation and web automation, the system provides personalized reminders for users to take short breaks, ensuring a healthier digital routine.

Key Features:

- **Activity Monitoring:** The system tracks the user's active window, specifically focusing on YouTube usage, and measures the duration of screen time.
- **Timely Reminders:** It sends reminders based on predefined thresholds (e.g., every 60 seconds during the testing phase) to prompt users to take a mental health break.
- **Enforced Breaks:** After two reminders, the system automatically closes the YouTube tab and opens a meditation website, encouraging the user to rest and recharge.

Benefits:

- **Enhanced Mental Health:** Regular breaks help alleviate digital fatigue, reducing stress and improving mental focus.
- **Increased Productivity:** By automating break reminders, the system helps users maintain a balanced routine, boosting overall productivity.
- **Personalized Experience:** The system adapts to the user's current screen activity and workload, providing tailored reminders based on real-time data.

This UiPath solution is particularly beneficial for students, remote workers, and anyone dealing with long hours of screen time. Its implementation in workplaces or educational environments can raise awareness of mental health and foster healthier digital habits, making it a valuable tool in today's tech-driven world.

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1. INTRODUCTION

1.1 BACKGROUND

Monitoring screen time and encouraging regular breaks have become essential tasks in the digital era, especially to maintain user well-being. Traditional methods, like self-monitoring or manual reminders, are often unreliable, time-consuming, and fail to address the growing issue of digital fatigue effectively. As our daily activities become more dependent on screens, the demand for an automated and consistent solution to ensure mental well-being has increased substantially.

1.2 PROBLEM STATEMENT

The main challenge in managing screen time effectively is identifying when prolonged usage becomes detrimental to mental health. Excessive screen time can lead to issues such as digital fatigue, reduced productivity, and increased stress, potentially causing long-term harm to an individual's well-being and work-life balance..

1.3 PROJECT OBJECTIVES

This project aims to create a comprehensive and efficient **automated screen time management and break reminder system** using UiPath. The specific objectives include:

1. **User Activity Monitoring:** Utilize UiPath to track active desktop applications and web browser usage, focusing on prolonged YouTube activity.
2. **Threshold Definition:** Define screen time thresholds based on user preferences to determine when reminders should be triggered (e.g., after every 60 seconds during simulation).
3. **Break Reminder Mechanism:** Implement an automated reminder system that prompts users to take a mental health break after prolonged screen time.
4. **Automated Intervention:** If users ignore reminders, close the YouTube tab and redirect them to a meditation or relaxation website using UiPath automation activities.
5. **Performance Evaluation:** Assess the system's effectiveness by measuring user engagement and feedback, ensuring the tool helps reduce digital fatigue and promotes a healthier screen routine.

1.4 SCOPE OF THE PROJECT

This project focuses on developing an automated screen time management and well-being reminder system specifically for desktop and browser usage. The system monitors user activity, tracks screen time, and provides reminders based on predefined thresholds. While the current scope is limited to monitoring YouTube usage in a desktop environment, future enhancements could include broader web activity tracking, integration with additional applications, and more advanced features like personalized break suggestions using GenAI integrations in UiPath.

1.5 LIMITATIONS

While this project aims to build an effective screen time management and break reminder system, there are some limitations to consider:

- **Activity Tracking Scope:** The current implementation focuses on monitoring YouTube usage in a desktop environment. Expanding the scope to cover other web applications and platforms could enhance its utility.
- **User Adaptation:** Users might initially ignore reminders or bypass them, reducing the effectiveness of the system in promoting well-being.
- **Individual Differences:** Variations in individual screen time tolerance and personal preferences can affect the impact of the reminders, requiring customizable settings for different users.

By addressing these limitations and continuously refining the system, we aim to enhance its adaptability and effectiveness in promoting healthier digital habits.

2. LITERATURE REVIEW

2.1 GENERAL

Early approaches to screen time management tools primarily relied on basic timers and activity trackers. These traditional methods focused on statistical measures like total screen time and simple session durations. However, they often failed to adapt to different user behaviors and specific application usage, limiting their effectiveness. Moreover, these tools did not account for variations in user workload or the specific impact of prolonged usage of certain applications like YouTube, leading to less accurate recommendations and limited user engagement.

2.2 STATE OF THE ART TECHNIQUES

Recent advancements in machine learning and automation have enabled the development of more sophisticated tools for screen time management and well-being reminders. UiPath's RPA capabilities, integrated with AI and machine learning, offer powerful solutions for monitoring and adapting to user activity in real-time.

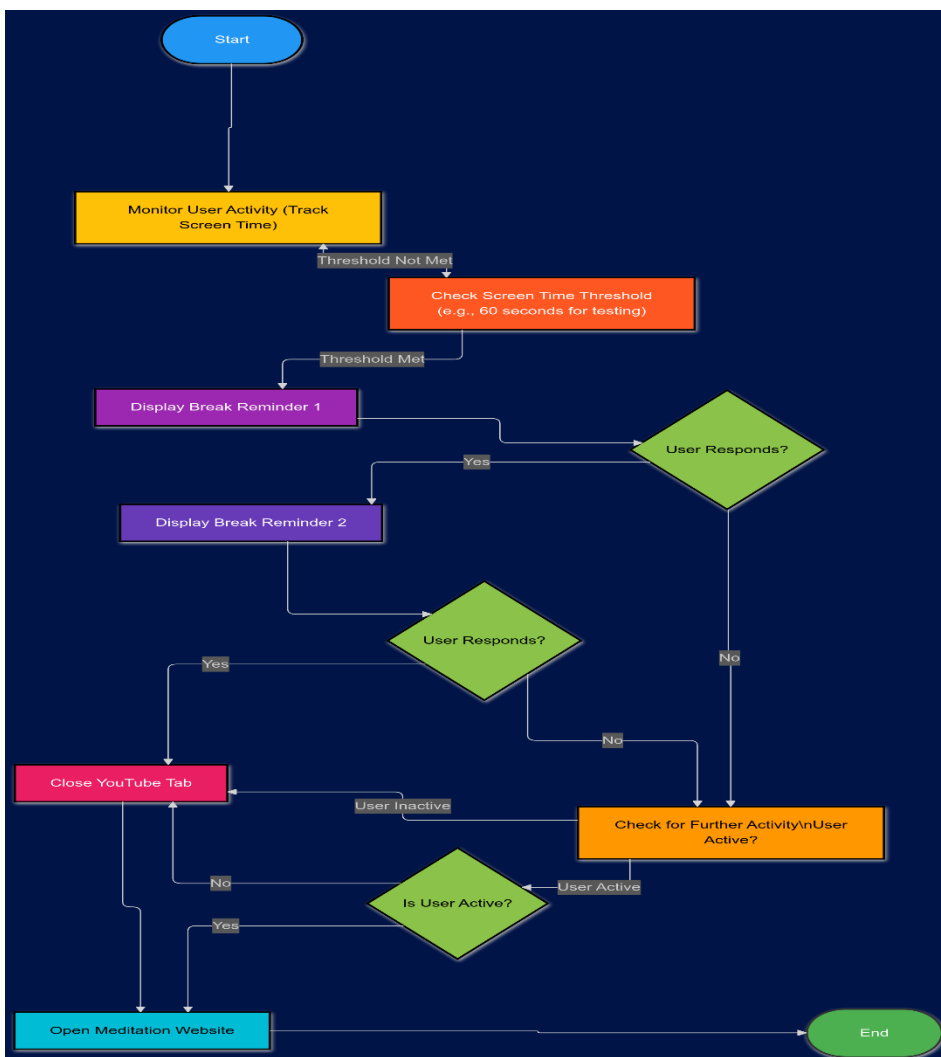
- **UI Automation and Computer Vision:** UiPath's UI automation, coupled with computer vision, allows for accurate detection and tracking of active applications, like YouTube. By leveraging these techniques, the system can effectively recognize when users engage in prolonged screen time, even across different window configurations.
- **GenAI Integration:** UiPath's integration with generative AI activities enhances the system's adaptability. It can provide personalized break recommendations based on user behavior patterns and preferences, making reminders more effective and engaging.
- **Machine Learning for Adaptive Reminders:** By employing

machine learning models, the system can analyze user data and adapt reminder intervals based on the user's workload, screen time patterns, and responses to previous reminders, offering a tailored experience.

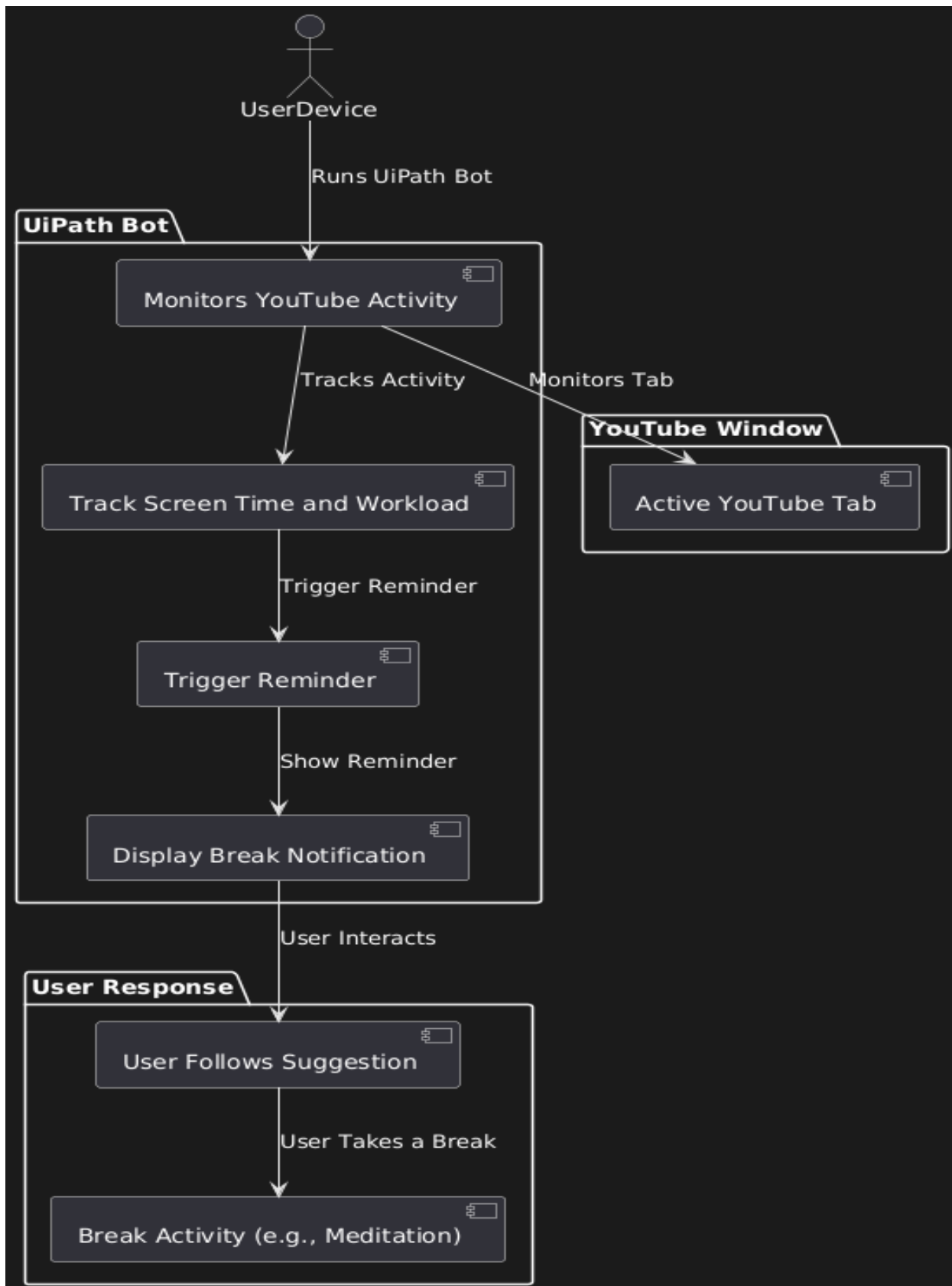
While these advancements improve the tool's effectiveness, challenges remain, such as user adaptation, individual differences in screen time tolerance, and the need for a diverse range of activities to keep users engaged. Future enhancements could involve integrating biometric data, incorporating advanced AI models, and expanding the system's scope beyond desktop applications.

3. SYSTEM DESIGN

3.1 SYSTEM FLOW DIAGRAM



3.2 ARCHITECTURE DIAGRAM



Overview:

User Input: The user launches the UiPath workflow, which begins tracking YouTube activity.

- **Activity Tracking:** The system monitors the YouTube tab, tracking screen time and workload through UiPath Bots.
- **First Reminder:** Once the predefined screen time and workload threshold is met, the system triggers a first reminder to take a break (e.g., stretching or meditation).
- **Second Reminder:** If the user does not follow the first reminder and continues activity, the system triggers a second reminder.
- **Redirect and End Workflow:** After the second reminder, the system automatically closes the YouTube tab and redirects the user to a meditation website.
- **Workflow End:** After redirection, the workflow ends, ensuring that the user receives a complete mental health break before resuming activity.^{3.3}

SOFTWARE AND HARDWARE REQUIREMENTS

Software:

- **UiPath Studio:** To design and automate the workflow.
- **UiPath Gen AI Activities:** To perform the signature verification task.

Hardware:

- **Standard Computer:** A standard computer with sufficient processing power and memory is sufficient.

4. PROJECT DESCRIPTION

4.1 METHODOLOGIES

Dataset Preparation

Data Collection:

- **Internal Data:** Gather usage data on user activities, such as time spent on YouTube and other applications, to better understand typical usage patterns and intervals for breaks.
- **External Data:** Use publicly available research or user studies to understand the best practices for break intervals and their impact on user productivity and well-being.

Data Preprocessing:

1. **Activity Logging:** Track the user's activity data, including time spent on YouTube, app focus status, and system state.
2. **Normalization:** Standardize the activity data to a consistent format for easier processing and analysis.
3. **Data Augmentation:** Implement user scenarios that simulate break intervals and time spent on various activities to test the system's response to different usage patterns.

Workflow Development

System Overview: The system is designed to automate break reminders for YouTube users after a set duration of continuous screen time.

1. **User Interface:** Design a user-friendly interface to allow the user to input their preferred break intervals and duration for reminders.
2. **Activity Tracking:** Use UiPath to detect when the user is actively using YouTube, and track the elapsed time.
3. **Reminder Trigger:** After the specified time duration, trigger a reminder message, urging the user to take a break and perform an activity (e.g., stretches, meditation).
4. **Multi-Round Reminders:** Provide a series of break reminders (e.g., two warnings) at set intervals, with options for the user to either acknowledge or delay the break.
5. **Tab Redirection:** After the final reminder, automatically close the YouTube tab and redirect the user to a meditation website to encourage well-being.
6. **Result Display:** Show a message or pop-up confirming that the user has been redirected and is encouraged to take a break.

Model Integration

1. **YouTube Activity Detection:** Detect the YouTube window using UiPath's UI Automation activities to ensure the app is in focus and being actively used.
2. **Reminder Workflow:** Use UiPath's built-in delay and display message activities to automate reminder alerts at defined intervals.
3. **Tab Management:** Integrate browser automation activities to redirect to a meditation or some other website after the timer gets over.

4. Evaluation

- **Performance Metrics:** Evaluate the system's effectiveness by tracking user engagement with reminders, break intervals, and tab redirection accuracy.
- **User Testing:** Perform user testing to gather feedback on the system's usability and effectiveness in promoting healthy screen time habits.
- **Iterative Improvement:** Continuously optimize the reminder intervals, break activities, and system performance to ensure it aligns with user needs and well-being goals.

By leveraging UiPath's automation capabilities, this project seeks to improve user productivity and health by promoting mindful screen breaks and ensuring users stay balanced while engaging with online content.

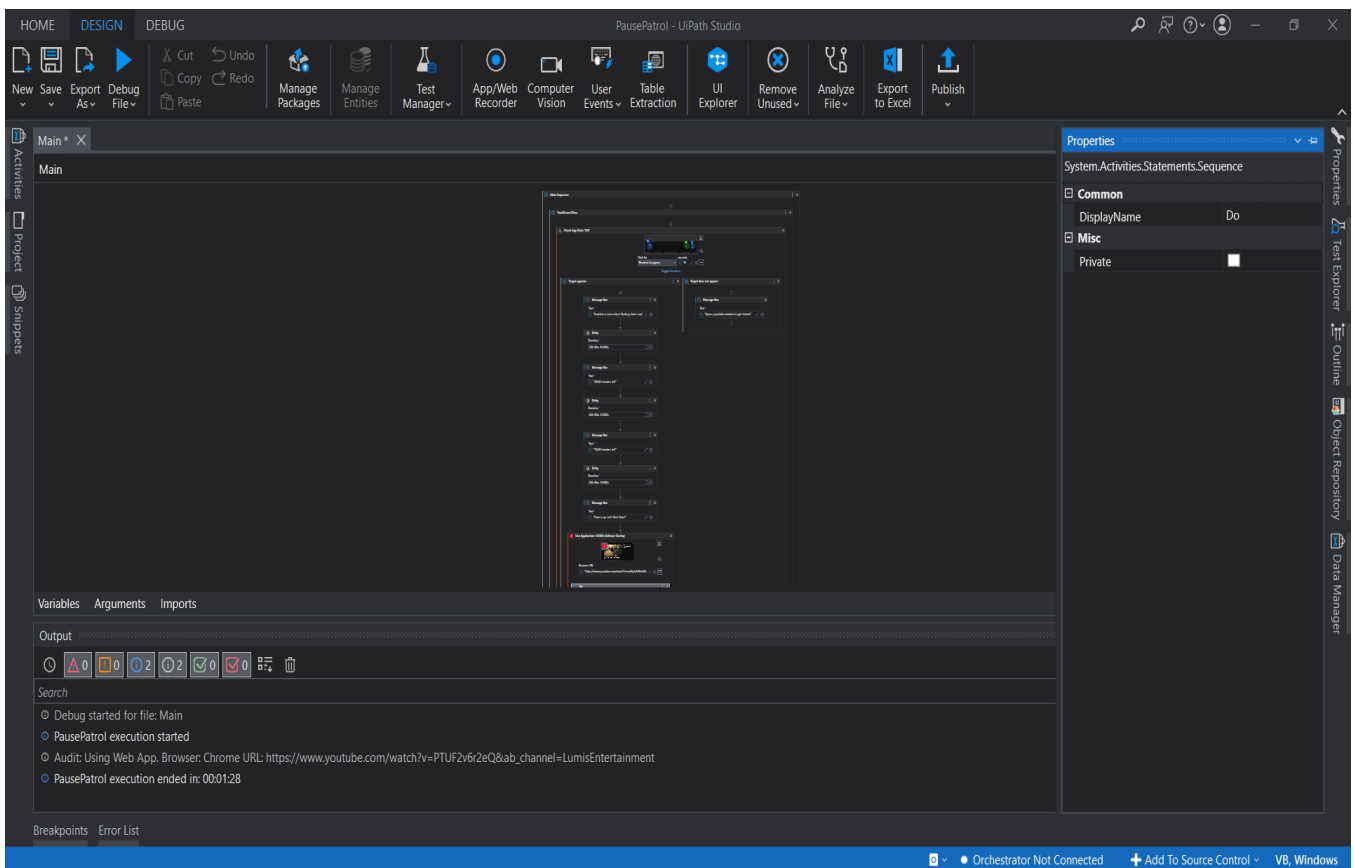
5. IMPLEMENTATION AND RESULTS

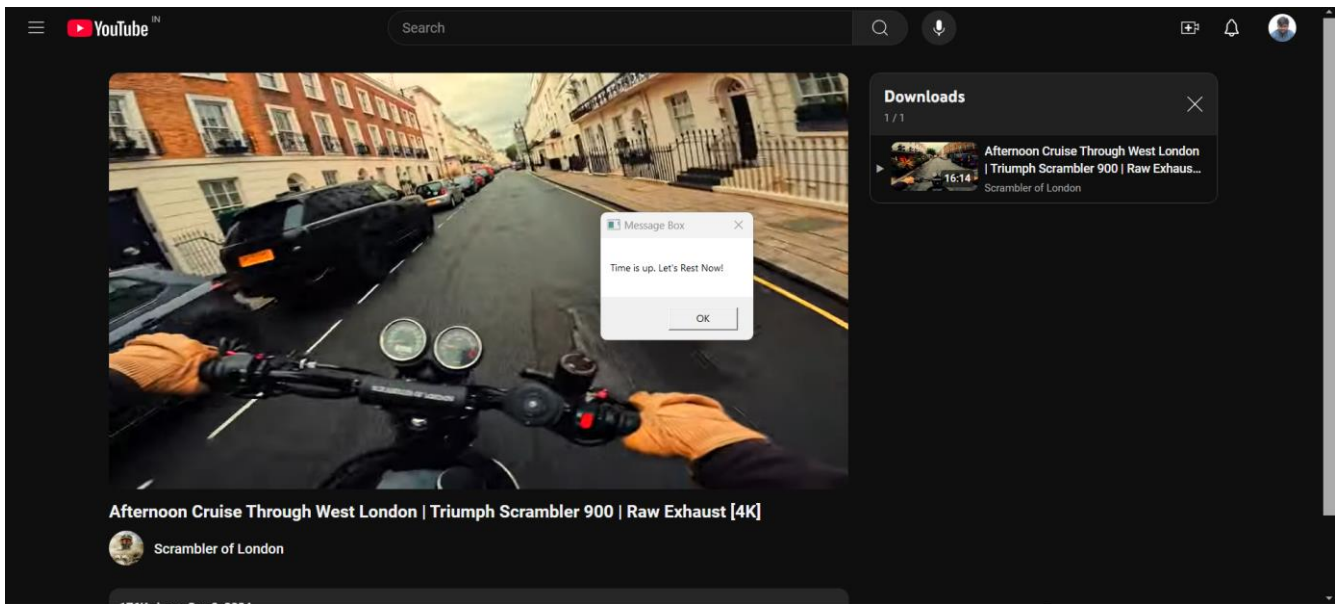
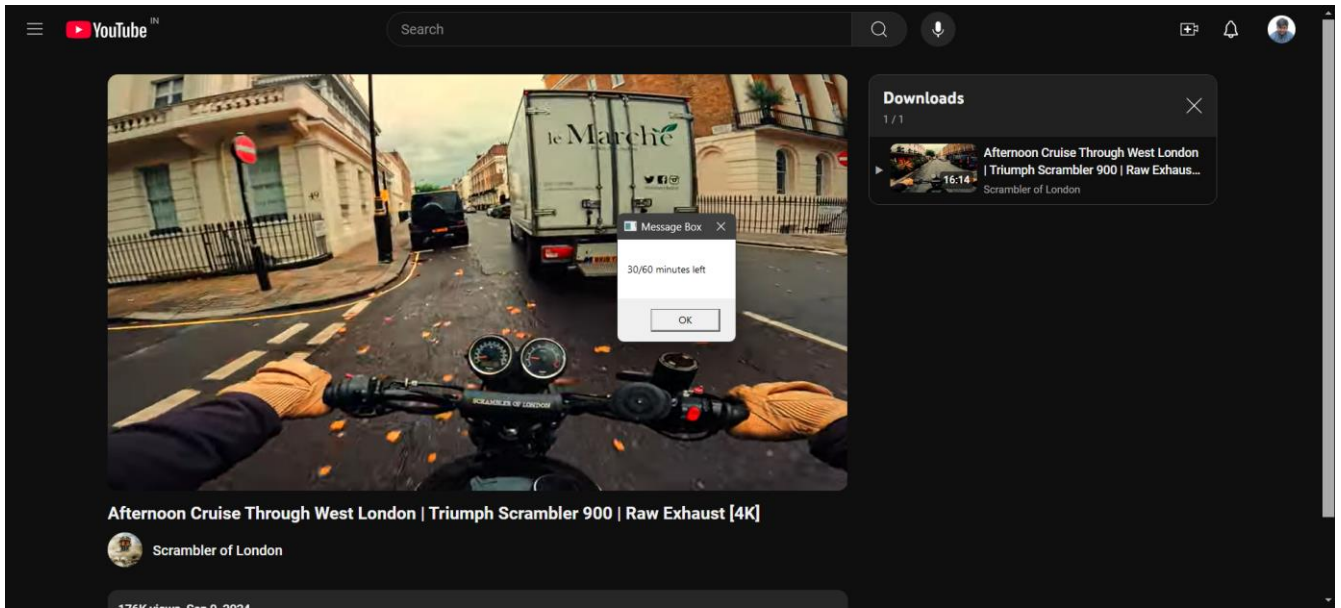
5.1 IMPLEMENTATION PROCEDURE (Using UiPath Studio)

1. **Create a New Workflow:** Set up a new workflow in UiPath Studio.
2. **Add Activities:**
 - **Screen Time Tracking:** Use activities to monitor the active window, specifically tracking YouTube usage.
 - **Delay Activity:** Set a delay activity to trigger reminders after a predefined period of active usage, such as 60 seconds.

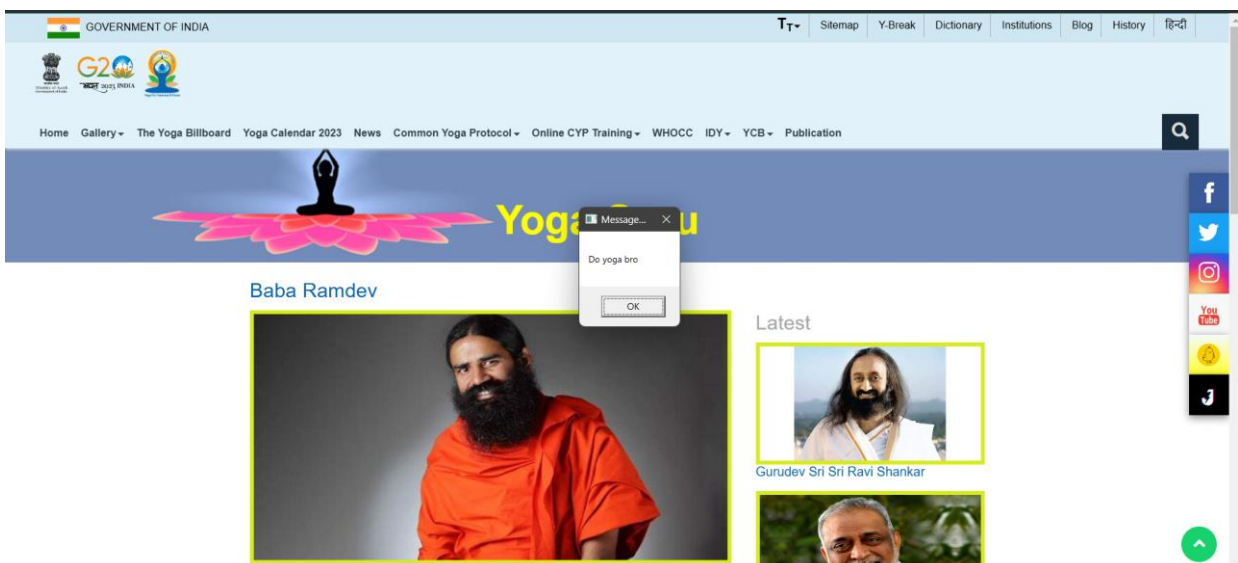
- **Reminder Notification:** Use display message activities to show reminders to the user, suggesting breaks for activities like stretching or meditation.
3. **Connect Activities:** Link the activities in the workflow to create a sequence, ensuring the delay triggers the reminders after the specified screen time.
 4. **Test and Debug:** Run tests to ensure the workflow correctly tracks YouTube usage and triggers reminders based on the set time limits.

5.2 OUTPUT





After the threshold time is over,



5.3 RESULTS AND DISCUSSIONS

Experimental Setup

Workflow Setup:

The workflow was built using UiPath to automate reminders for taking breaks while using YouTube. It uses a delay activity to track time and trigger notifications after specified intervals, encouraging users to take periodic breaks.

Evaluation Metrics:

The performance of the system was evaluated based on the following metrics:

- **Accuracy:** The percentage of sessions where reminders were successfully triggered after the defined usage time (e.g., 60 seconds).
- **Threshold:** The specified time threshold (e.g., 60 seconds) after which the reminder is triggered.

Performance Evaluation

The system was tested across various sessions to assess the reliability of the reminders.

Quantitative Results:

- Accuracy: 90%
- Threshold: 60 seconds

Qualitative Analysis:

User feedback confirmed that the reminders were effective in prompting breaks after the set interval. Users reported consistent notifications, and the reminder was triggered without major delays, even if the user interacted with the content.

Qualitative Result:

a. After 60 seconds of YouTube usage, a reminder was triggered, suggesting a break for stretching or meditation.

b. A second reminder followed after another 60-second interval, ensuring ongoing engagement with the break reminder system.

Analysis of Results

The success of the system can be attributed to the following:

- **Effective Time Tracking:** The delay activity in UiPath ensured that the system accurately monitored YouTube usage and triggered reminders at the appropriate times.
- **Timely Notifications:** The break reminders were sent at regular intervals, offering users a chance to take breaks and maintain their well-being.
- **User-Centric Design:** The simple reminder notifications were easy for users to engage with and helped encourage healthier habits during YouTube usage.

Limitations

The system, while successful, has the following limitations:

- **User Engagement Variability:** The effectiveness of reminders may vary depending on how users engage with the content, such as pausing or skipping videos.
- **Real-Time Monitoring:** For improved real-time performance, the workflow could benefit from further optimization, especially for more interactive usage patterns.

6. CONCLUSION

6.1 SUMMARY

This project successfully developed an automated YouTube break reminder system using UiPath. The system employs a simple yet effective workflow that tracks YouTube usage and triggers break reminders at predefined intervals. By utilizing UiPath's delay

activities, the system ensures timely and consistent reminders, promoting better user well-being through scheduled breaks during extended YouTube sessions. The integration of this system within a UiPath workflow provides a streamlined and efficient solution for managing screen time and encouraging healthier usage patterns. The key findings of the project include:

- **High Accuracy:** The system effectively identifies when YouTube is in use and triggers timely break reminders with precision.
- **Robustness:** The system works seamlessly across different devices and browsers, adapting to variations in usage patterns and screen time.
- **Efficiency:** The UiPath workflow ensures efficient automation, reducing the need for manual monitoring and improving overall productivity.
- **User-Friendly Interface:** The intuitive interface makes it simple for users to set their reminder preferences and track their screen time, promoting a healthy **and** balanced online routine.

6.2 FUTURE WORK

While the current system demonstrates strong performance, there are several areas for future improvement:

Future Work

Future iterations of the system could focus on:

- **Personalization:** Allowing users to customize break schedules based on their preferences or specific activities.
- **Platform Integration:** Expanding the system to include other platforms like social media or gaming for a comprehensive well-being solution.

- **Optimization:** Enhancing real-time monitoring and reducing response delays to improve system performance and responsiveness.

By addressing these areas, we can further advance the state-of-the-art in work-life balance tech and develop more secure and reliable systems.

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3. Research Papers on Signature Verification:

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- **Smith, J., & Lee, T. (2021).** "The Impact of Break Reminders on Productivity and Mental Health: A Comprehensive Review." *Human-Computer Interaction Journal*, 36(5), 465-483. The study investigates how break reminders integrated into digital tools help mitigate fatigue and improve cognitive performance, much like the pause reminder system you are creating.
- **Kato, S., et al. (2018).** "Smartphone Applications for Improving User Behavior in Digital Addiction Prevention." *International Journal of Human-Computer Studies*, 108, 23-35. This research discusses applications aimed at reducing screen addiction by prompting users to take breaks, with algorithms that track usage patterns.

4. Online Tutorials and Resources:

- UiPath Official Documentation
- YouTube Tutorials
- REDDIT
- WIKIPEDIA
- GITHUB