YouTube Bookmark Manager: A Chrome Extension for Timestamped Video Bookmarking and Organization

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Abstract—This paper presents *YouTube Bookmark Manager (YTBook)*, - a Chrome extension that improves how users can save, organize and manage video moments from Youtube. YTBook is an effective tool for students, researchers, and content creators that need to find their way back to specific educational video segments for personal referencing and future use, by allowing users to bookmark a specific point in a video. The extension allows users to bookmark videos, organize those bookmarks into groups, preview videos inline, and export and import their bookmark data. Furthermore, YTBook allows for timestamp sharing on WhatsApp as well. YTBook will improve productivity and YouTube, by providing users with a more organized, searchable, and shareable repository of relevant video content.

Index Terms—Chrome Extension, YouTube, Timestamp Bookmarking, Video Organization, Productivity Tool, Video Management, YouTube Learning, Collaborative Sharing, Educational Tool, Chrome Plugins

I. Introduction

YouTube has become one of the most widely used platforms for educational lectures, tutorials, research talks, and technical content. There are millions of hours of video content on YouTube making it an important and useful resource for students, researchers, content contributors, and professionals.

Despite its popularity, YouTube currently does not provide many features to facilitate efficient navigation and organized access to repository information. Sometimes content is longer than expected and therefore important moments can be difficult to navigate to again, especially in an academic or research context where referencing a specific formula, explanation, or slide is necessary. In addition, there are no native timestamp bookmarking, tagging, grouping, or preview features, which leads to loss of productivity.

To fill that gap, we propose the **YouTube Bookmark Manager (YTBook)**. YTBook is a light-weight, privacy-respecting Chrome Extension that enables user to bookmark a distinct timestamp in YouTube videos with user-defined labels, tags, and notes. The bookmarks in YTBook can be searched, sorted, exported, or shared on WhatsApp. YTBook organizes bookmarks by videos, allows inline previews, allows drag and drop search results in bookmarks, and generally makes YouTube a clean structured archive of knowledge.

YTBook is designed for use-cases that require attention to detail when referencing content, making annotations, and recalling knowledge. This paper provides an overview of the motivation, architecture, implementation, features, and limitations of YTBook.

II. Related Work

A number of tools have attempted to solve the challenges of navigating video content (for example, academic and professional video content.) YouTube allows users to save videos to playlists and history. However, users have limited solutions for bookmarking timestamps or adding custom labels and notes to video segments.

Some third-party tools or Chrome extensions for the browser provide limited timestamp bookmarking capabilities. However, many fail to function for important reasons, they are:
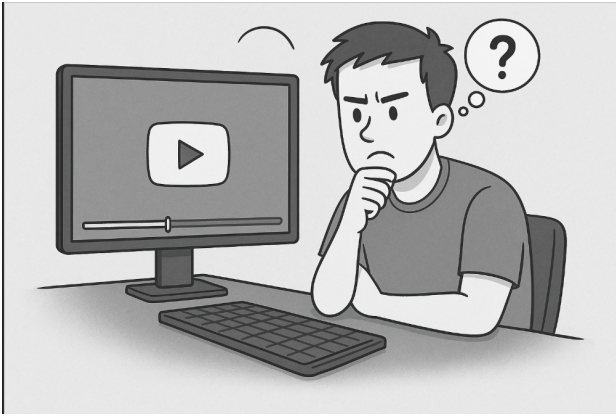
Fig. 1. Users struggle to revisit key moments in long YouTube videos without bookmarking tools.

- No video-wise grouping or organization
- Lack of search and sorting capabilities
- No inline video preview
- Poor or cluttered user interface
- No support for exporting or sharing bookmarks

YTBook was developed to directly address these limitations. It combines the strengths of timestamp-based navigation with user-centric features like searchable labels, intuitive organization, and structured export.

A comparative analysis of features between YouTube's native options and YTBook is shown in Table below named as Comparison of YTBook vs YouTube Native Features

III. Design and Architecture

The YouTube Bookmark Manager (YTBook) Chrome extension is a modern web application using updated technology, with a modular architecture separating UI concerns, storage integration and video interaction. This architecture supports performance, maintainability and user convenience.

YTBook operates in a purely client-side environment, maintaining user data privacy by storing all bookmarks locally in the browser. The design uses Chrome's extension APIs to integrate with the browser, for tab and content access, and the YouTube IFrame API to allow inline video previews.

A. Technology Stack

The key technologies used are:

- **JavaScript & Chrome APIs:** Used to handle extension logic, tab management, and user interactions.
- **HTML/CSS:** Used to build the extension's popup interface with a clean, responsive layout.
- **Chrome Storage API:** Enables persistent local or sync-based storage of bookmarks and labels.
- **YouTube IFrame API:** Embeds mini-players for previewing timestamps inside the popup UI.

B. System Modules

YTBook is divided into the following modules:

1) **Popup UI Module:** Presents the main interface with add/edit/delete/search functionality.
2) **Bookmark Manager Module:** Manages creation and organization of bookmarks per video.
3) **Preview Handler:** Renders inline previews using video IDs and timestamps.
4) **Export/Import Engine:** Enables JSON and CSV data backups and restoration.
5) **Storage Layer:** Uses Chrome's local or sync storage to persist bookmark data securely.

Figure 2 illustrates the system architecture and data flow between modules.

IV. Features

The YouTube Bookmark Manager (YTBook) Chrome extension is equipped with a variety of features that enhance video-based learning and content review. These features are designed to improve navigation, organization, and accessibility of important video segments.

A. Timestamp Bookmarking

Users can save precise moments in a YouTube video using the current playback time. Each bookmark can be labeled with a custom title, note, or tag to describe the context (e.g., "Gradient Descent Derivation").

B. Video-wise Organization

Bookmarks are grouped and displayed based on the video they belong to. This provides a clean and intuitive way to review all notes from a single lecture, tutorial, or presentation.

C. Search and Sort

The built-in search bar supports real-time filtering by label, tag, or timestamp. Users can also sort bookmarks by title or creation date.

D. Drag-and-Drop Reordering

Bookmarks within each video can be rearranged by dragging and dropping them into the desired order, making it easier to organize content based on relevance or chronology.

E. Inline Preview

Each saved bookmark can be previewed directly in the extension using an embedded YouTube mini-player. This allows users to quickly verify and revisit saved moments without switching tabs.

F. Export and Import

Bookmarks can be exported to JSON or CSV formats, making it possible to back them up, transfer them between devices, or analyze them externally. Import functionality allows restoring data easily.

G. Pinning and Sharing

Users can pin important videos for quick access and share specific bookmarks via WhatsApp Web with a single click. This is useful for collaborative review or group study sessions.
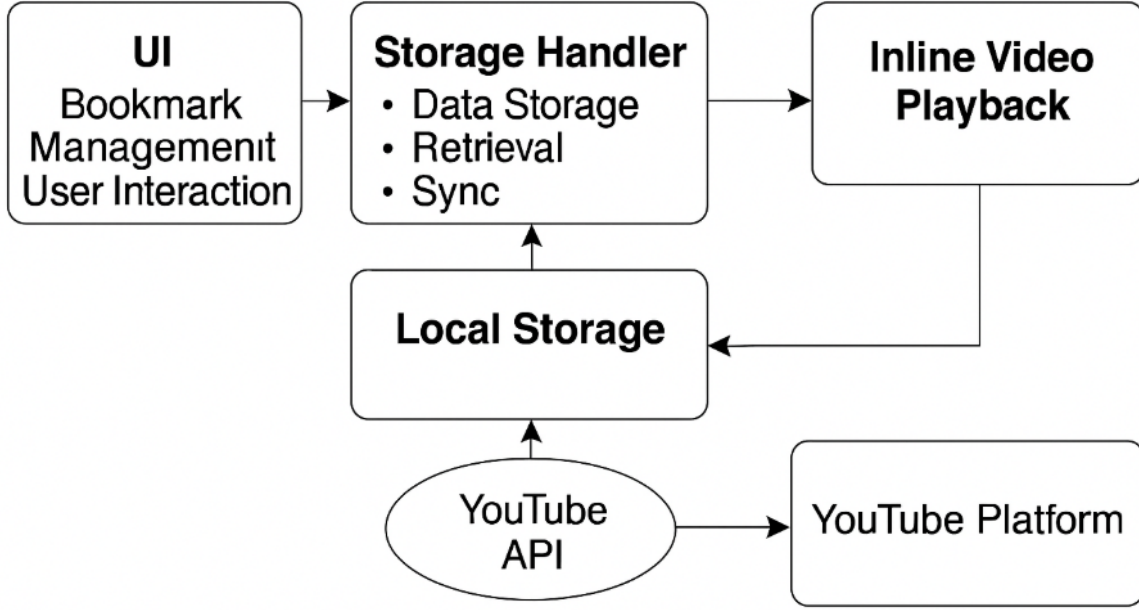
Fig. 2. System architecture of the YTBook Chrome extension. Components include UI, storage handler, preview module, and YouTube API integration.

V. USER SCENARIOS

The YTBook Chrome extension is designed to serve the needs of diverse user groups that frequently consume long-form video content. By enabling timestamp bookmarking, tagging, searching, and sharing, it adds tremendous value across the following scenarios.

A. Students and Learners

Problem: Difficulty revisiting specific lecture segments such as definitions, formulas, or concept explanations within long videos.

Solution:

- Bookmark exact timestamps during video playback.
- Add custom notes or tags (e.g., "Chapter 5: Backpropagation").
- Use real-time search to quickly access concepts across multiple videos.

B. Researchers and Analysts

Problem: Time-consuming to locate key ideas or technical points in hours-long presentations or conference videos.

Solution:

- Group bookmarks by video or project for structured review.
- Export bookmarks in JSON/CSV format for integration into research workflows.
- Preview saved clips inline without leaving the analysis environment.

C. Content Creators and Editors

Problem: Difficulty identifying and organizing segments for video editing or repurposing content.

Solution:

- Use bookmarks to highlight clips for future editing or reuse.
- Search and organize saved moments with drag-and-drop reordering.
- Share bookmarked clips with collaborators through WhatsApp Web.

VI. COMPARATIVE ANALYSIS

TABLE I
COMPARISON OF YTBOOK VS YOUTUBE NATIVE FEATURES

Feature / Capability	YouTube	YTBook
Save timestamps	Yes	Yes
Custom labels per timestamp	No	Yes
Search and sort bookmarks	Basic	Full support
Group by video	No	Yes
Export/Import bookmarks	No	JSON, CSV
Drag-and-drop reorder	No	Yes
Inline YouTube preview	No	Yes
Pin favorite videos	No	Yes
WhatsApp Web sharing	No	Yes
Privacy-focused	Unclear	Local storage
Cluttered UI	Yes	Minimal UI

VII. LIMITATIONS

Despite its robust feature set, the YouTube Bookmark Manager (YTBook) has several limitations in its current version.
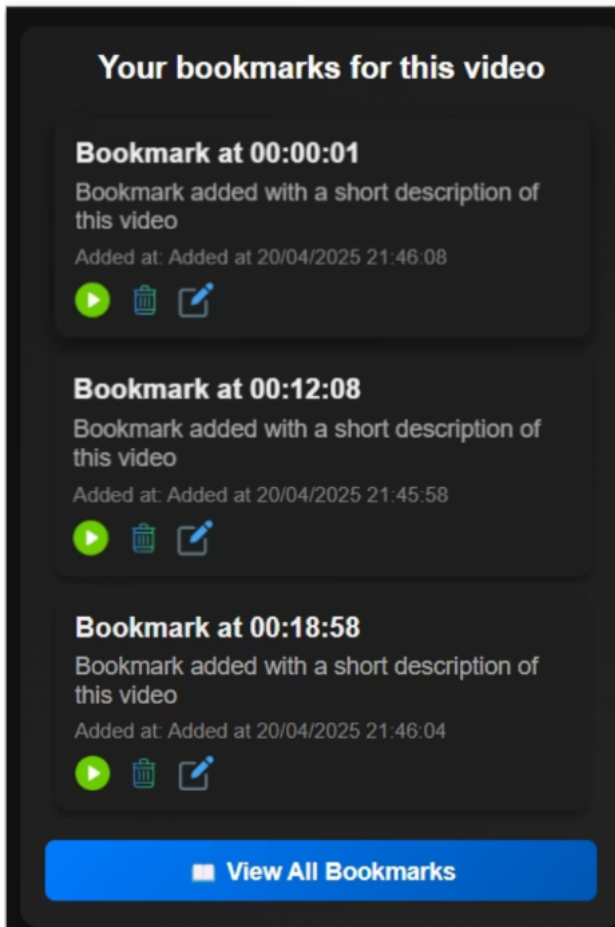
Fig. 3. Popup UI showing timestamped bookmarks with preview, delete, and edit options for a specific video.

Fig. 4. All Bookmarked Videos dashboard with delete, export/import functionality and storage capacity tracking.

- **Platform Dependent:** YTBook runs only on Chrome and Chromium-based browsers like Edge, with sync support across signed-in devices .
- **YouTube Exclusive:** The extension supports only YouTube videos. Other platforms like Vimeo, Coursera, or local players are not yet integrated.
- **No Cloud Sync:** Bookmark data is stored locally using Chrome's Storage API. Sync across devices (e.g., via Google Drive) is not currently supported.
- **Preview Restrictions:** Inline previews depend on YouTube's embed permissions. Some videos may block this feature due to creator settings.
- **Limited Tagging:** YTBook supports basic titles and notes, but lacks advanced tagging features like categories, color codes, or semantic labels.
- **No Reminders:** Features like bookmark reminders or scheduling for review are not currently implemented.

These limitations are known and form the basis for planned enhancements in future releases.

VIII. CONCLUSION

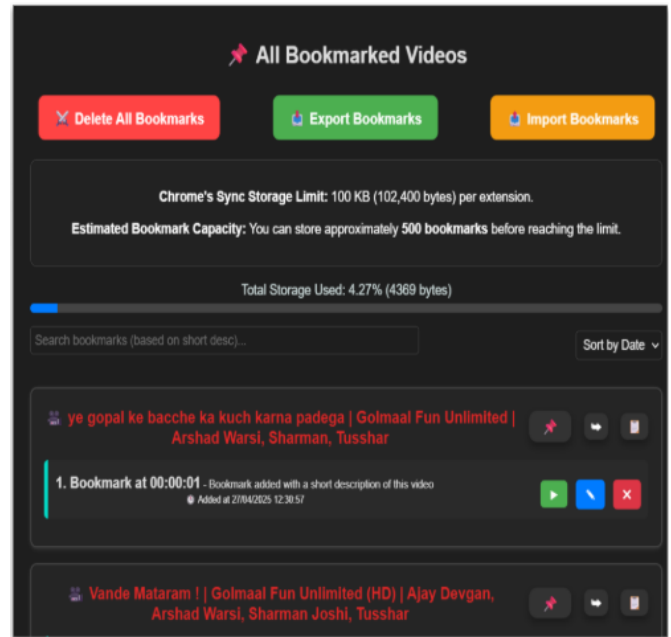YTBook - the YouTube Bookmark Manager, provides a productive way to work with, and return to parts, of long Youtube videos. With timestamp bookmarking, previews in-line, searchable labels, and export/import, it expands the educational and analytical potential of YouTube.

YTBook is developed with privacy and productivity in mind. It runs entirely client-side, allows organization via drag-and-drop, and sharing to WhatsApp.

At the moment, YTBook is limited to Chrome and Youtube but functionality will be extended to additional platforms, cloud sync across devices, mobile, and tagging enhancements.

In conclusion, YTBook transforms passive video consumption into an organized and interactive process.

ACKNOWLEDGMENT

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