

Doom2Bloom: Intelligent Browser Activity Tracking and Focus Management System

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ABSTRACT

Maintaining sustained attention in digital environments is increasingly difficult due to constant exposure to online distractions. Doom2Bloom is a browser-based productivity and focus-management system that analyzes user interaction patterns, models productivity behavior, and encourages intentional digital usage through integrated analytics, planning, and control features. A browser extension and companion web platform collect non-sensitive behavioral signals including tab activity, interaction events, session duration, idle state, and audio presence. Supervised machine learning models including Logistic Regression and Random Forest classify sessions as productive, neutral, or distracting while identifying focus decline and distraction trends. The system also supports goal setting, website limits, Study Mode, visual summaries, and privacy-conscious data retention.

Introduction: Digital distraction has become a major barrier to sustained productivity for students and professionals. Existing tools often provide only blocking or screen-time reporting, but not unified tracking, analysis, classification, and intervention. Doom2Bloom addresses that gap in one integrated platform.

OBJECTIVES

- Track browser activity in real time using non-sensitive signals.
- Measure session duration and distinguish active vs. passive usage.
- Classify sessions as productive, neutral, or distracting.
- Detect focus decline and recurring distraction trends.
- Provide planning, usage limits, and behavior redirection tools.
- Support privacy-preserving long-term productivity analytics.

FUTURE UPGRADES

- Mobile companion app for remote control
- Change rules and Study Mode from phone
- Cross-device sync between extension, dashboard, and mobile app
- Phone alerts for warnings and blocked attempts

DATASET AND BEHAVIORAL SIGNALS

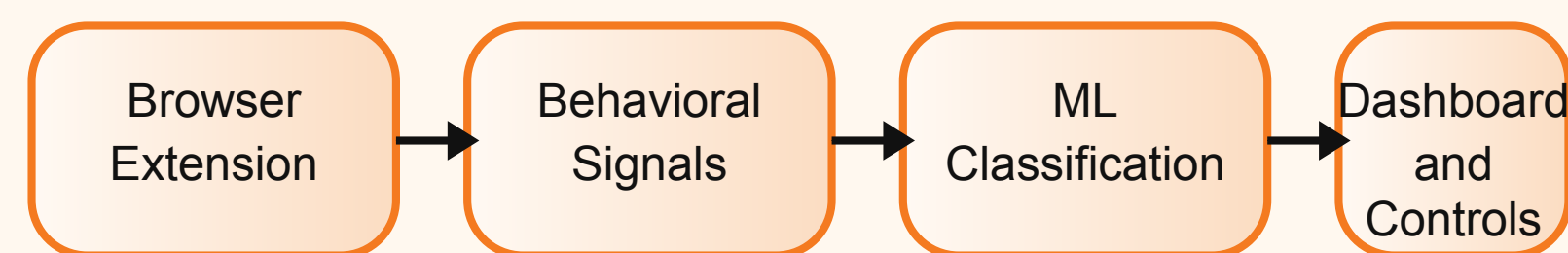
SIGNALS

- Active tab changes
- Session start and end time
- Page duration
- Idle / inactive state
- Interaction events
- Audio presence
- Browsing recurrence patterns

DATA SOURCES

- `URL Classification.csv`
- `dmoz.csv`
- 1,563,019 usable URL rows
- 959,383 unique domains
- 1,195,898 usable DMOZ rows

SYSTEM ARCHITECTURE



EXISTING TOOLS VS. DOOM2BLOOM

EXISTING TOOLS	DOOM2BLOOM
Basic website blocking and screen-time limits	Real-time browser activity tracking
Limited insight into distraction behavior	Proper classification of productive, neutral, and distracting activity
Rarely classify productive vs. distracting activity	Blocking, timer limits, category rules, and Study Mode
Limited long-term progress tracking	Dashboard for long-term productivity progress and behavioral trends
Often separate blocking and reporting tools	Unified tracking, intervention, and progress review in one system

CORE FEATURES

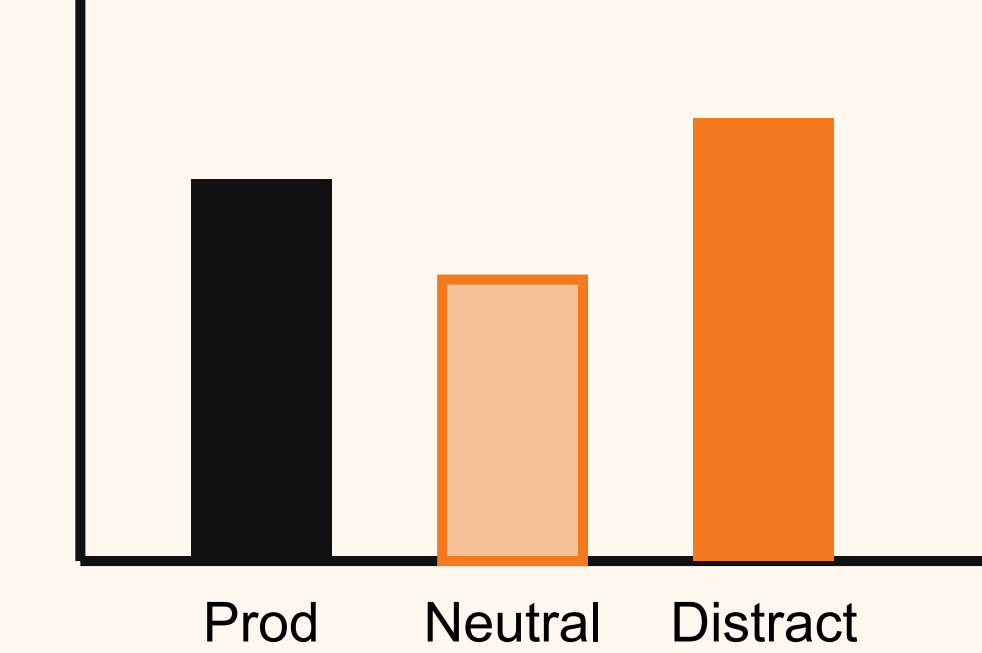
- Tracking:** Real-time browser activity and session timing.
- Analytics:** Category analysis, trends, and long-term summaries.
- Machine Learning:** Productive, neutral, and distracting session classification.
- Focus Controls:** Usage limits, selected resources, and work-session rules.

MACHINE LEARNING COMPONENT

- Models:** Logistic Regression and Random Forest.
- Classification goals:** productive, neutral, distracting sessions.
- Patterns detected:** focus decline, repeated distraction loops, high-risk sites, uneven time allocation.

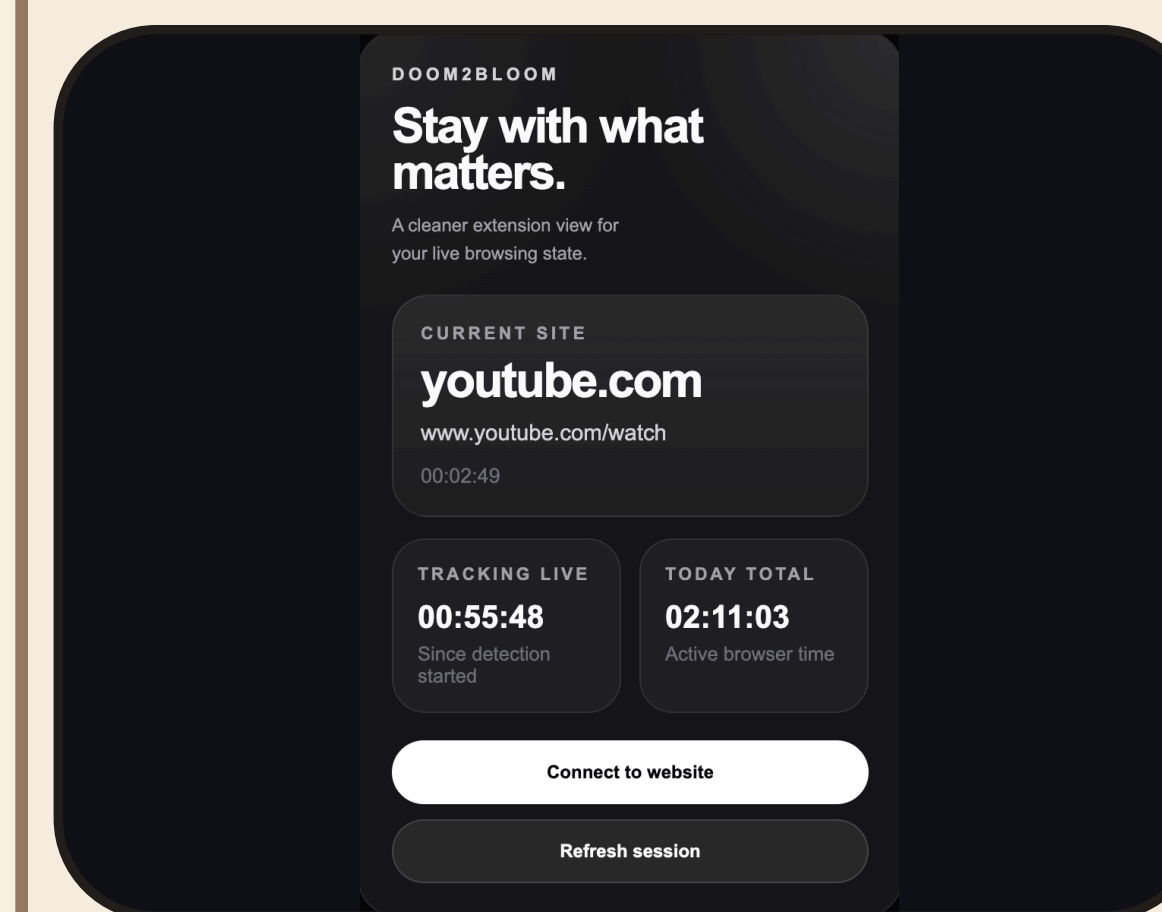
RESULTS / EXPECTED OUTCOMES

Session Class Counts

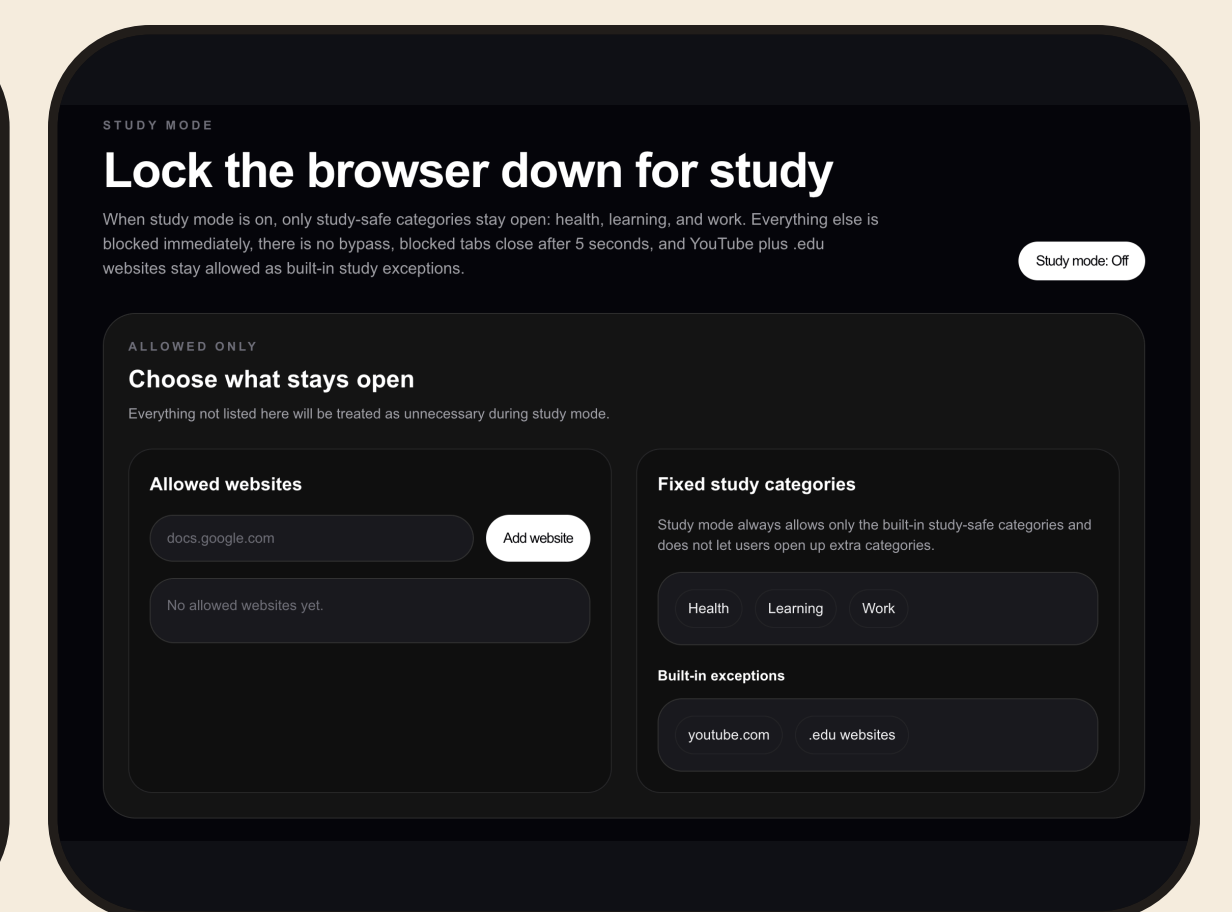


- Clearer awareness of online time usage.
- Separation of active work from passive browsing.
- Improved detection of distraction behavior.
- Better self-regulation through planning and limits.
- Measurable progress in sustained attention over time.

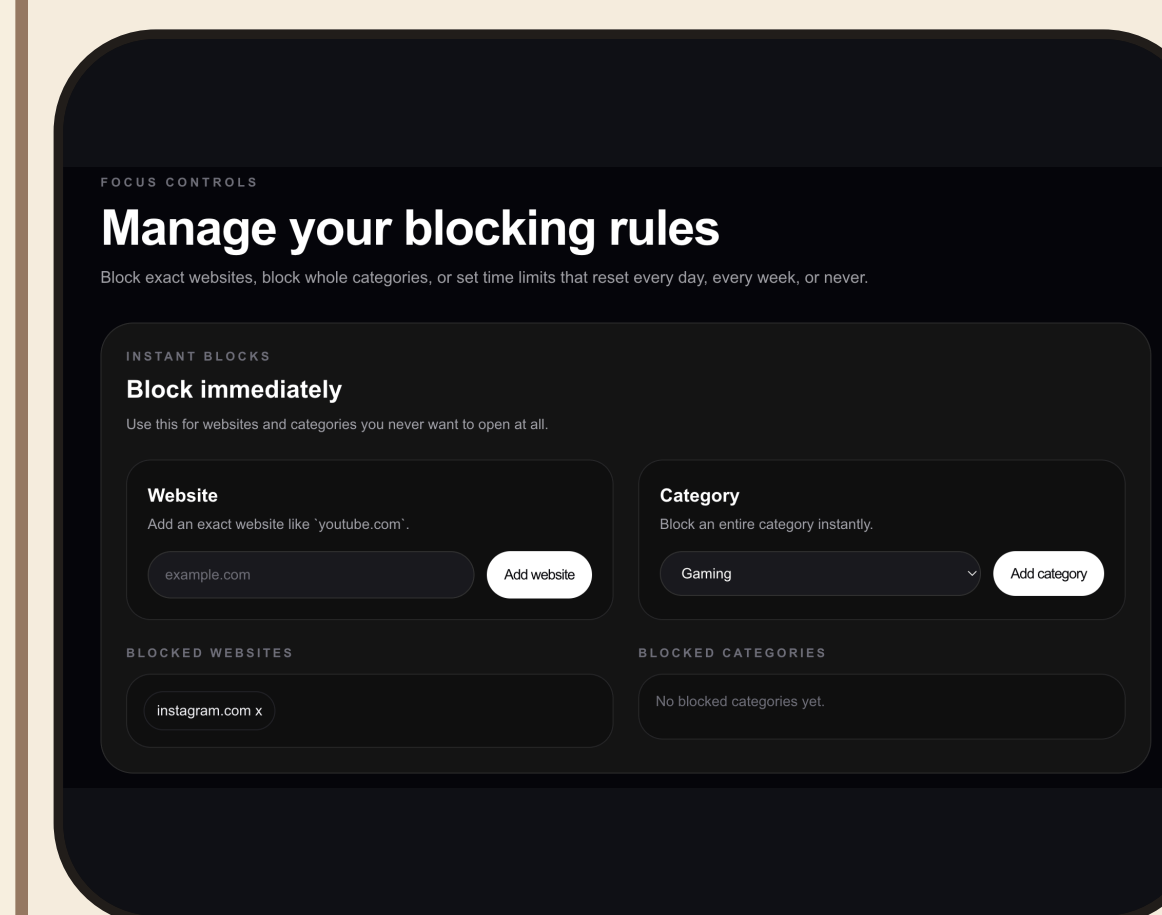
DASHBOARD AND VISUAL ANALYTICS



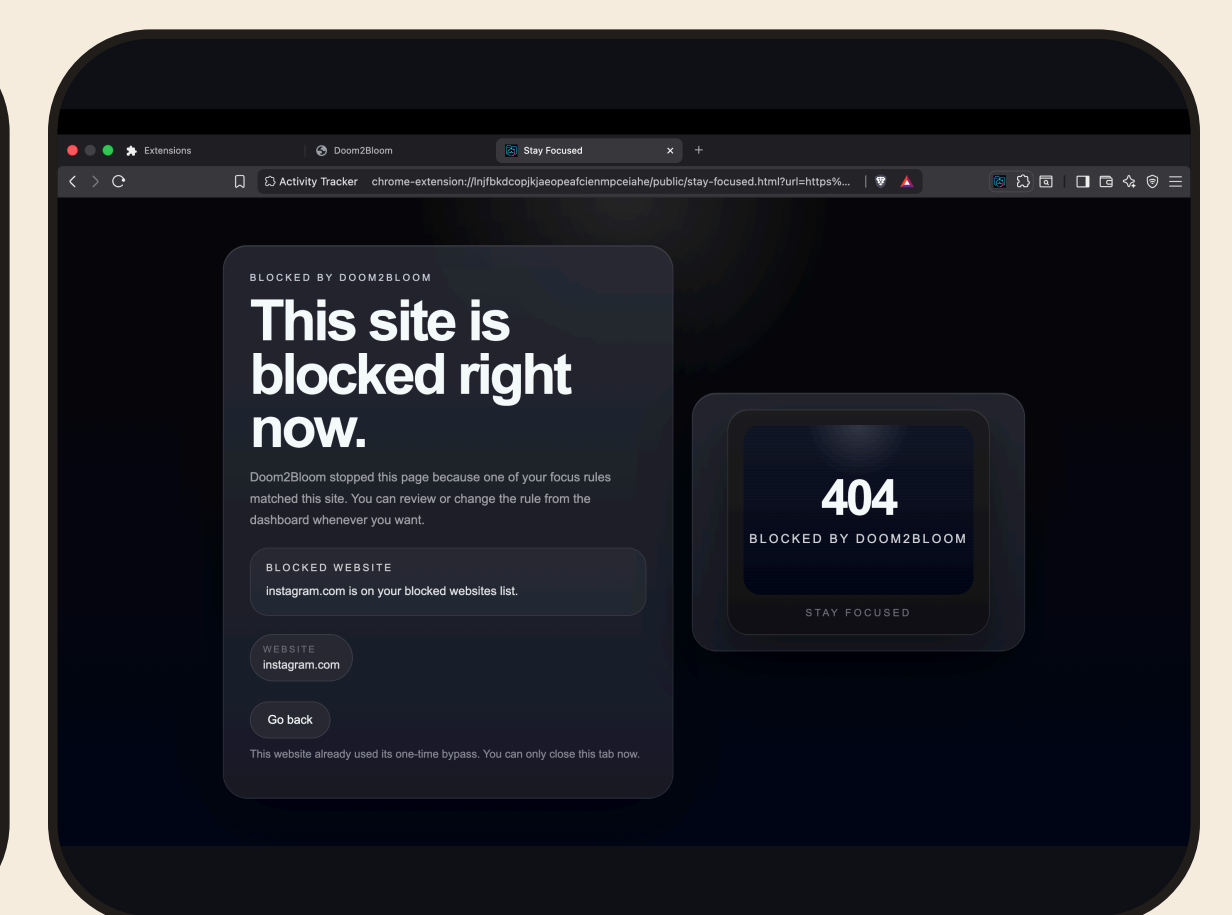
EXTENSION POPUP



STUDY MODE



BLOCKING RULES



BLOCKED WEBSITE STATE

STUDY MODE

Study Mode restricts access to distracting websites while allowing only selected academic, research, or work-related resources. It supports work sessions, usage limits, and reduced impulsive context switching so the browser functions as a more intentional workspace.

REFERENCES

URL Classification.csv: Sayad Ahmed, *Website Classification Using URL*.
dmoz.csv: Ashadullah Shawon, *URL Classification Dataset [DMOZ]*.

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