FocusBot

Help team members to be productive while working remotely.

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ABSTRACT

The persistent issue of student inattention detrimentally impacts academic performance, which necessitates effective interventions. This paper introduces FocusBot, an AI-driven tool designed to remove distractions by employing real-time monitoring and personalized feedback, which would foster improved focus and engagement. Our analysis explores FocusBot's deployment within educational settings and its effect on enhancing concentration and academic outcomes, presenting it as a viable solution to the challenge of student inattention. Through FocusBot, we envision an approach towards creating a more productive learning environment.

INTRODUCTION

The COVID-19 pandemic made working from home (WFH) popular for employees worldwide. However, this sudden environment change can cause people to be distracted in their homes and get less work done than they would have in the office. A survey was done by Lisa Baudot and Khim Kelly to see how people perceived improvements in productivity during the pandemic, if it was different from times they worked from home before the pandemic, and whether they would prefer remote work over working in the office. They also examined how these three results were related to personal/family demographics, organizational and job-related variables, and supervisory control variables. They found that employees tend to prefer remote work; however, productivity was negatively impacted by child-care access, position level, tenure, and tight supervisory controls. From another study by Dr. Revenio C. Jalagat, Jr. and Almalinda M. Jalagat about remote working in developing countries found that remote working caused issues including social isolation, laziness, and difficulties in prioritizing tasks, despite literature showing that remote work has enhanced flexibility and better working environments. As a result of this variability between different countries, family situations, types of jobs, and varying supervisors, employees need a new tool to help them stay productive. Our FocusBot will include tools such as being able to list tasks with varying priorities so people can get tasks done more efficiently. Other features like Kanban boards will show which tasks were not completed that should be finished the next day with increased priority. Further, we will have tools such as a pomodoro timer with messages to

remind people to stand up and take breaks so they are not sitting down for long periods of time. People can also get notifications each day about tasks to complete and meetings. FocusBot will also be able to be shared amongst friends, coworkers, or teams so people can see how much progress others are making and see their activity status throughout the day. This can motivate people to complete their work similar to working in a study group or working in an in-person team. FocusBot will be created with JavaScript, HTML, and CSS.

SOFTWARE ENGINEERING PROCESS

Our team has chosen to utilize prototyping as our primary software engineering approach, ensuring the 'Focus Bot' aligns seamlessly with user needs. By initiating with a detailed prototype reflective of user expectations, we aim to ensure the bot's relevance and utility. Once our prototype reaches its desired maturity, we'll transition into Agile development, leveraging both Sprints and Kanban methodologies. Kanban will serve as our roadmap, assisting us in task prioritization and timely execution. Meanwhile, Sprints will facilitate focused collaboration, enabling us to swiftly address and overcome any challenges or blockers we encounter. To maintain alignment and momentum, we'll conduct daily stand-up meetings in our dedicated Slack channel, ensuring every team member is aligned and progressing efficiently. Moreover, weekly meetings will be convened to strategize for upcoming sprints and reassess our evolving priorities.

MOTIVATING EXAMPLE

After modalities in professional settings have been switched from in-person to remote work due to the Covid-19 pandemic, students and employees have struggled to find a way to focus on their responsibilities in their home environments. Suzy was starting her freshman year of college after the Covid-19 outbreak, and after struggling to complete her senior year of high school due to the sudden switch to online learning and classes, she worried about how she was going to deal with the college level of coursework while taking classes online and at staying at home. Through research of tools designed to help people focus on their remote work, Suzy discovered the FocusBot, a helpful tool to organize and track her responsibilities, as well as receive feedback on her progress. With the help of FocusBot, Suzy was able to input all of her course assignments so that she would not forget any deadlines, and set aside time daily to complete one or several pomodoro cycles to focus on completing her work effectively and efficiently. She would receive periodic insights from FocusBot that would summarize accomplishments and go over her study habits, so that she would be able to identify what areas she was successful in and what areas she needed to improve. By incorporating FocusBot into her remote learning environment, Suzy was able to transform her study habits into constructive, powerful skills that she can implement into all aspects of her life.

BACKGROUND

The landscape of professional environments has undergone a shift due to the COVID-19 pandemic, with remote work becoming a norm rather than an exception. This transition, while offering flexibility and safety, has brought forth several challenges impacting employee productivity and mental well-being. To fix these challenges, there has been a growing need for tools and applications that can help remote

workers and students manage their time effectively, stay focused, and balance work with personal life. However, most of these tools address only a small section of the problem, such as time tracking or task management, and do not offer a holistic solution to enhance focus and productivity comprehensively. The development of FocusBot uses technologies in web development, including JavaScript, HTML, and CSS, to ensure a scalable solution.

RELATED WORK

Tools that are similar to our FocusBot include RescueTime and TogglTrack. RescueTime is a time management application that tracks computer use to provide insights into productivity. Like FocusBot, RescueTime helps users understand their work habits and eliminate distractions. TogglTrack is a simple time tracking tool that allows users to monitor how much time they spend on various tasks. This tool offers data-driven insights that can help software engineers manage their time more effectively, similar to FocusBot. However, FocusBot differs in that it offers many solutions in one app instead of having different apps for productivity. TogglTrack is meant just for automatic time tracking. RescueTime is also a paid service, which is not as accessible for students and instead works better for companies. FocusBot also offers relaxation techniques which both tools do not offer to users.

RELEVANT WORK

• Supporting the productivity and wellbeing of remote workers: Lessons from COVID-19

• How to Support Teams to be Remote and Productive: Group Decision-Making for Distance Collaboration Software Tools

• Remote work mindsets predict emotions and productivity in home office: A longitudinal study of knowledge workers during the Covid-19 pandemic

• Individual, social and situational determinants of telecommuter productivity

• Workplace flexibility and new product development performance: The role of telework and flexible work schedules

IMPLEMENTATION

In order to implement this FocusBot we want to focus on Behavior-Driven development. This is so that both feature driven development and test driven development are combined in order to have a smooth process when creating this bot. In order to test that this bot is working as expected both black-box and white-box tests will be written. Users deserve a platform of the highest quality and including both of these tests ensures that. Pair programming will be prioritized so that the team can use their strengths to develop different parts of the code. Finally in order to ensure that the most efficient code is written, many code reviews will be included. Code reviews are a great way for the whole team to agree on the bot should be created. Using the processes described will create a webapp (using HTML, CSS, and JavaScript) that will be useful to all users. Further, the best high level architectural pattern for our FocusBot would be a layered or tiered architecture to handle both events and data. Our FocusBot has many different functions and use cases, including a pomodoro timer, progress reports, reminders for tasks, and relaxation techniques, so the Bot has a lot of data to keep track of for its different responsibilities.

DEPLOYMENT PLAN

An ideal deployment for the FocusBot would be one in which bugs are minimized and fixes or new features can be worked on and added quickly. As such, a combination of a canary deployment and dark launch would be the best option. A canary deployment would ensure a swift, cheap and safe deployment for the FocusBot where full deployment to all users would mean the application has been tested, bug-fixed, modified based on feedback and polished as much as possible by the time it is deployed to every user. The previously mentioned dark launch would also be vital, but it would be more closely related to maintenance. Making use of dark launches to test the effects of new features or fixes in future patches or builds would provide results that would more closely resemble how the features would change the application without making the users deal with the consequences of a faulty or bug-filled release. Dark launches combined with continuous integration and deployment would not only result in mostly consequence or risk-free patches and builds but would also make it possible to deal with problems, bugs or request in a quicker manner as we would always be ready to fix and deploy better builds along with avoiding submitting code with problems as much as possible in the first place.

DISCUSSION

Currently limitations are the fact that the Pomodoro technique might not work for a lot of people. It is important in future iterations that other focusing techniques are included so that more users can find this bot useful. For future extensions of this project the study insights page needs to be improved in order to give users better understanding of their focus/study habits. Maybe including websites/apps that they continue to get distracted with so that they can keep that in mind when they are in their focus time. Another major limitation is that this bot relies on the user's input. This can often lead to incorrect data and therefore causing the user to see wrong information.

CONCLUSION

Our original problem statement discussed the issue of dwindling focus among students during school, especially with the increase of online school following the pandemic. This inability to focus has an impact on academic performance and overall growth. Some of the root causes for lack of focus include digital distractions, personal challenges that affect concentration, and lesson delivery methods that are not engaging. The current solutions that exist are inadequate in addressing the core issues, there is a lack of universal effectiveness, and are insufficient in catering to individual needs. There needs to be innovative and easy-to-adopt solutions that aim for enhanced student engagement and attention so everyone can have an enriched learning experience. Our FocusBot is a tool to help mitigate these root causes including digital distractions and concentration issues by allowing for features like Pomodoro timer, analysis on study sessions, reminders, and relaxation techniques. Through requirements analysis, requirements specification, high-level and low-level design analysis, and a mock UI design, we were able to design a software system that helps students and software engineers alike. For software engineers, FocusBot will help maintain a distraction-free environment to help with coding and problem solving, and provide personalized feedback to improve workflow and efficiency. While working on this tool, we were able to learn and refine many skills. We practiced

project management skills by understanding how to plan, organize, and manage a project, including time management and meeting deadlines. We learned teamwork skills by learning how to collaborate effectively with each other and finish deliverables in a timely manner. Finally, we learned a lot about user experience (UX) design to understand how to design a user-friendly interface that is intuitive and effective for users, including learning about different layouts, color schemes, and interaction designs.

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