

# Software Developer Productivity Bot

Sonny  
McMaster  
[sonnymc@vt.edu](mailto:sonnymc@vt.edu)

Aaron  
Lambert  
[aaronlambert@vt.edu](mailto:aaronlambert@vt.edu)

Brett  
Noneman  
[brettn@vt.edu](mailto:brettn@vt.edu)

Danny Spatz  
[dspatz@vt.edu](mailto:dspatz@vt.edu)

Harrison  
Leverone  
[lharry@vt.edu](mailto:lharry@vt.edu)

## ABSTRACT

There are many different tools that software engineers use in both physical and digital formats, like timers and rubber duck debugging. These tools are sometimes hard to find quality versions of. So, to solve these problems we are making a discord bot that combines multiple tools into one.

## INTRODUCTION

Debugging is something that takes up a lot of the average developer's day. Depending on which study you read, debugging can fill somewhere between 25% to 75% of the average developer's day. These studies all agree that the average developer spends a large amount of their day debugging. Some of these bugs can be something as simple as a missing bracket or a misspelled word. As a group, we believe that a lot of these bugs can be avoided very easily. If developers incorporate frequent rest times and tried and unique debugging practices, the amount of time spent debugging could be decreased exponentially. Doing so would decrease the frustration of the developers and increase their productivity, benefiting everyone. To assist with this issue, we have decided to create a discord bot that developers can use to boost productivity. It has 3 main features: a debugging chat bot, a rest timer, and a joke chat bot to boost morale and decrease frustration in the user. The debugging chat bot utilizes a tried and tested debugging technique called rubber duck debugging, which will listen as the user walks through their code and help them catch bugs. The rest timer includes a customizable timer that will help the user organize their work times and breaks to keep them refreshed. Finally, the joke feature will raise the user's morale when they are feeling frustrated and/or bored and get them in the mood to be more productive.

## RELATED WORKS

There are two relevant techniques that relate to our project.

### Pomodoro

The Pomodoro technique was developed by Francesco Cirillo in the 1990s and it splits time into two intervals, 25 minutes working then a 5 minute break. It then does four of these 30 minute sessions with a 15-20 minute break after the 4th session before repeating the process. According to [builtin.com](https://builtin.com), "People who practice the Pomodoro Technique say it improves their concentration and that they feel less drained when the workday is over", so by allowing the timer part of our bot to take Pomodoro technique requests, it will help to improve the user's productivity.

## Rubber Duck Debugging

Rubber duck debugging has been around for many years, where the programmer talks through the code to an inanimate object, usually a rubber duck, to try and talk until the problem presents itself. UBISglobal.com, the website for the University of Business Innovation and Sustainability in Switzerland says on their website, "Putting the effort to teach your rubber duck can help you recognize whether you actually understand a topic". Our bot would give generic responses to the issues the user is having so that it doesn't distract them and send them on random tangents that could be wrong, thus allowing the user to recognize if they truly understand the expected behavior and what is currently going on in their code.

## SOFTWARE ENGINEERING PROCESS

We will use an incremental software engineering process for this project because since we have three distinct features, we can split them up and work on/release them one by one to ensure each works. This will culminate in a final release that works with all three functions that all work together.

## REFERENCES

- [1] Assaraf, Ariel. "This Is What Your Developers Are Doing 75% of the Time." Coralogix, 20 Feb. 2023, [coralogix.com/blog/this-is-what-your-developers-are-doing-75-of-the-time-and-this-is-the-cost-you-pay/](https://coralogix.com/blog/this-is-what-your-developers-are-doing-75-of-the-time-and-this-is-the-cost-you-pay/).
- [2] "Does the Pomodoro Technique Work for Coding?" Built In, [builtin.com/software-engineering-perspectives/coding-pomodoro-method](https://builtin.com/software-engineering-perspectives/coding-pomodoro-method). Accessed 22 Sept. 2023.
- [3] "Rubber Duck Debugging Method: How to Study More Effectively: Ubis." UBIS University of Business Innovation and Sustainability, 2 Dec. 2022, [ubisglobal.com/blog/get-a-rubber-duck-how-to-make-your-study-time-more-effective/#:~:text=The%20Rubber%20Duck%20Debugging%20theory%20is%20commonly%20used%20by%20programmers,the%20solution%20to%20present%20itself.](https://ubisglobal.com/blog/get-a-rubber-duck-how-to-make-your-study-time-more-effective/#:~:text=The%20Rubber%20Duck%20Debugging%20theory%20is%20commonly%20used%20by%20programmers,the%20solution%20to%20present%20itself.)