RewardBot: A smart bot-based reward and recognition system for software engineering teams

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Abstract

The rewards and recognition system for software engineering teams suffer from flaws like lack of transparency, inability to quantify rewards clearly, and lack of clear transparent actionable objectives. Lackluster rewards and recognition systems lead to employee discontent, which results in alarming trends like "Quiet Quitting" and "The Great Resignation". In this design proposal, we present a solution called "RewardBot" that uses the concept of gamification to recognize and reward employees by awarding points based on their contributions to the project and the open source community. The accumulated points are displayed on a leaderboard and can be redeemed for rewards. The motivation behind the "RewardBot" is that it would lead to better project outcomes as it would help people to follow clearly defined goals aligned with the organization's objectives, boost the team's overall productivity, ensure transparency, and heighten impact visibility.

CCS Concepts: • **Software and its engineering → Collaboration in software development**; *n-tier architectures*; • **Human-centered computing → Reputation systems**.

Keywords: Rewards, Recognition, Collaboration

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1 Introduction

The pandemic has significantly changed people's expectations about the workplace. As a result, we have seen a rise in trends like "Quiet Quitting"[2] and "The Great Resignation"[9]. One of the main reasons behind these alarming trends is employee dissatisfaction stemming from the lack of meaning and value from their contributions. As a result, organizations today face a new challenge where they cannot arrest the rising attrition rates and are looking for ways to improve their retention strategies.

One strategy is to bring innovation to the rewards and recognition system[1]. In a traditional setup, the inability to qualitatively quantify contributions makes existing systems seem arbitrary and need more transparency. Also, traditional methods don't provide clear transparent actionable objectives that employees can pursue to be recognized and rewarded. Additionally, the current system may be biased and discriminate against gender, race, orientation, etc., as managers or panels could be discriminatory. This leads to employees being discontent resulting in a loss of productivity for the team and the organization. Thus traditional rewards and recognition systems are ineffective and need a significant overhaul.

We propose to solve this problem by introducing the concept of gamification[5] into the rewards and recognition system at the workplace. The solution, a slack-bot[4] called "RewardBot", enables employees to be recognized for their contributions and rewarded through points. The points can be awarded manually by either the manager to their direct report or peer-to-peer to appreciate their contributions, like fixing a major production issue or helping a peer debug a problem. An automated system can also award points for scenarios like a new feature commit in a Git repository and having no roll-over Jira issues at the end of a sprint. The accumulated points can then be redeemed from a list of rewards: organization merchandise, time off, coupons, lunch

with the CEO, etc. Another important feature would be a weekly leaderboard that would be visible to everyone in the organization, so that top performers get greater recognition. The new reward and recognition system would add more meaning and value to employees' contributions, get immediate feedback, promote a healthy work culture and competition where people don't become complacent by doing only the bare minimum, and increase productivity. Apart from the productivity and cultural benefits, the company can also ensure that employees align their goals with the organization's and use the system to keep a tab on top performers and focus efforts on retaining them hence saving on rehiring and retraining.

2 Related Work

While deciding on features for our solution we came across a few existing implementations which were an inspiration for some of our ideas.

2.1 Motivosity

Motivosity[6] believes in maximizing productivity, motivation, satisfaction and engagement by linking recognition to specific tasks, rewards or goals. It is ideal for goal-centric teams. A unique feature of Motivosity is that it allows team members to attach money as recognition or appreciation. Employees can cash out dollars as a gift. It uses actual dollars instead of reward points which is done to motivate employees more and build an environment of healthy competition. One of the Motivosity features that inspired us was that anyone can recognize anyone. This helps to build a strong relationship between employees. A single manager cannot keep a track of all the employees under them.

2.2 Bravo

Bravo[7] is an AI-based employee recognition software. It is available on smartphones, PC and a web extension. It collects data from all the sources while deciding on the top candidate. Bravo uses AI for employee suggestions. The goal of Bravo is to give employees the true recognition they deserve. Bravo's Data Analytics feature can give deeper insights about each employee and their work. Bravo also provides graphs which can make the analytics much easier. The spotlight feature influenced us to add a leaderboard to our bot. This will promote healthy competition among the employees with an incentive of rewards.

2.3 Bonusly

Bonusly[8] is an online service that allows employees to be rewarded, recognized and celebrated. In Bonusly anyone can recognize anyone like peer to peer or manager to peer. It automatically sends invites or rewards to celebrate special events like birthdays or work anniversaries. From Bonusly we adapted features like Integration with other apps. As Slack is used by most teams, having such an app within Slack will be useful. Our bot completely as a different software won't be motivating enough for the employees as they will have to switch apps. But if it is inside Slack, employees can check the leaderboard, points and rewards after each task or hour thus motivating them more. Adding a reward catalog was a key idea to adding redemption of points in our bot.

3 Architecture Design

As seen in Figure 1, the RewardBot would be built using a 3-tiered architecture[3]. In the first tier, the bot would be integrated with Slack, where the user would tag the bot to issue commands. The commands are then sent over an HTTP request to the middle-tier back-end service, where the command is parsed, and appropriate steps are processed to return a response. The final tier is the data layer which interfaces with the database to perform actions such as store and redeem points, audit commands, persist user details, etc.

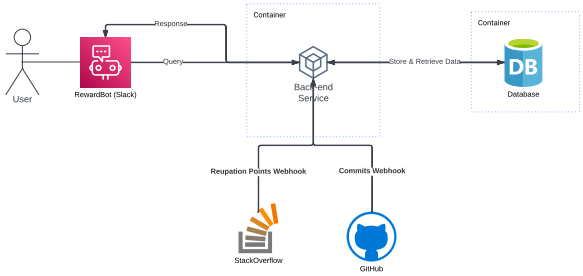

Figure 1. Architecture Diagram

Some guidelines when building the solution is to keep in mind that being a data-centric application, it is imperative to adopt a database that strongly exhibits the ACID (Atomicity, Consistency, Isolation, and Durability) properties, as there should be no mismatch in the points. Also, external integrations with tools/sites like GitHub, Jira, and Stackoverflow would be based on event-driven webhooks to avoid polling or manual invocation. Finally, the bot would be communicating with the back-end services over REST API calls, so we would need to design REST APIs that can scale and are robust.

As for design patterns, we would be using the Singleton design pattern to create a single database instance that will be used to perform CRUD operations on the database. We would use the Private Class Data pattern to ensure that only the required classes can access the data. Finally, we will use the Observer pattern for the automated points reward system. The service would listen to a new GitHub commit push event and respond by allocating points to the commit's author.

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