Software Requirements Specification for Mashbot

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Revision History

Name	Date	Reason for Changes	Version
George D'Andrea, Andrew Gall, Josiah Kiehl, Cody Ray, Vito Salerno	16 February 2010	Revised from Reviews	1.1
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Contents

1 Introduction

1.1 Purpose

This document is the general overview of the software requirements for the Mashbot project. These requirements are directly related to the functionality, performances, constraints, attributes, and interfaces of the system.

Mashbot is a web service for managing a company's presence on social networks. One goal of Mashbot is to unify the interfaces of a multitude of social networks, allowing users to learn a standardized interface and more easily cope with the flood of new social network platforms. A second goal is to allow for a hands off approach to social network marketing by allowing the scheduling of campaign events to be distributed to social networks.

1.2 Scope

This document contains the criteria by which the initial Mashbot release will be judged. It is written for the developers, testers, and end-users of Mashbot.

1.3 Glossary

- **Campaign** A collection of content that is scheduled to be published

- **External Service Account** An account on a social networking platform outside of Mashbot

1.4 Overview

Marketing, customer service, business overhead and development efforts compete for resources in many startups and small businesses. Furthermore, early stage startups often have small or non-existent marketing budgets, especially in resource-hungry product-based startups. Although the plethora of widely available and affordable communications technology (e.g., social media, VoIP, streaming video, etc.) theoretically reduces both capital and operating expenditures related to marketing, the quantity of such technologies and services effectively creates an "opportunity overload" which makes the process of maintaining a focused and effective marketing campaign more difficult. Furthermore, with the number of services, technologies, and "specialists" arriving each day, it is nearly impossible to keep up with all the trends, much less fully take advantage of each one, or even monitor them all adequately. The widespread adoption of communications technology is a double-edged sword; there are many more avenues for marketing and customer service, but it is much more difficult to effectively apply reputation management strategies or adequate customer service through all channels. This project proposes to build a tool to increase the effectiveness and efficiency of marketing campaigns and customer service for small to medium businesses.

2 Overall Description

2.1 Product Perspective

The initial focus will be on scheduled marketing campaigns utilizing social media. However, this may expand to include customer service functionality, management of more traditional campaigns such as direct mail, trade shows and other events, or user-created campaign classes.

The first objective is to develop and release a small open source platform to provide a service agnostic facade API bundling common operations in widely used services (e.g., Facebook, Flickr, Twitter, Wordpress, or YouTube). This platform will provide a plugin-based architecture for abstracting myriad services behind a single facade, based upon content types provided in common data models. This sub-project will not only be useful to the open source community but will also devalue much of the competition whose prime added value

comes from providing such a service. Furthermore, it opens the opportunity for the public to help maintain existing service plugins as well as contribute plugins for new services. Finally, it leads to the inclusion of both a dual licensing revenue model and a niche software development service-based revenue model for custom extensions and applications built upon this core, which is proven to be more sustainable over time.

The first application of this core platform will be the campaign manager referenced above. While the exact feature set is to be determined during the design process, expected features include a portal to existing services where messages can be "pushed", or broadcast, through existing service channels. This portal will also allow for the collection of responses from customers, fans, critics, and other audiences from these same channels. Users will be able to view social networking messages directed at them, as well as perform data mining tasks on the social networks to provide more intelligent heuristics regarding brands' strength amongst particular markets. They will also be allowed to schedule campaign events at certain times. For example, users will be able to prepare a press release far in advance of its distribution, or queue a number of updates to be spread out over a certain time period.

2.1.1   System Interfaces

Mashbot combines several components to provide required functionality.

- **Authentication** Mashbot will allow the use of external authentication modules for user login. Mashbot will also provide an internal authentication mechanism in case an external module is unavailable.

- **Campaign Manager Web Client** Mashbot has an interface for a web client which processes user commands to interact with campaigns.

- **Publishing and Aggregation Platform** Mashbot has an interface for publishing content to social networks, as well as for aggregating social network data.

- **Database** Mashbot has an interface to a database which allows for the storage and retrieval of data related to accounts and campaigns.

2.1.2   User Interface

The user interface consists of a web front end with tabs to separate the various workflow areas. To create content, the user is provided with a calendar scheduling tool and a content editor. Additionally, there is a monitoring dashboard which gives the user a view on responses to the content in any given campaign. Finally, there is an explore view that gives the user a portal with which they can keep tabs on topics of interest in social media.

2.1.3   Hardware Interfaces

The Mashbot web client runs on any computer hardware meeting the following criteria:

- Capable of connecting to the Internet

- Capable of running a modern HTTP 1.1 web browser

- Includes a keyboard and a pointing device

- Includes writable volatile storage

The Mashbot server runs on any computer hardware meeting the following criteria:

- Capable of connecting to the Internet as a server.

- Capable of interfacing with modern database software.

- Capable of running a modern suite of networking software.

2.1.4 Software Interfaces

The Mashbot software integrates some external software to provide functionality.

- **Authentication** Mashbot authenticates users against it's internal user database.

- **Campaign Manager Web Client** Mashbot interfaces with the users web browser and expects that it is capable of HTTP 1.1 and HTML 4.0.

- **Database** Mashbot software interfaces with an existing database software.

- **Publishing and Aggregation Platform**

- **Server** The Mashbot server runs on an operating system that supports serving dynamic web pages using encryption and is capable of communicating with the Internet.

2.1.5 Communications Interfaces

Communication between the web client and the server software is facilitated by common network protocols. This allows compatibility with the majority of our user's machines. Data will be encrypted using TLS and HTTP/1.1. The use of these protocols requires the ability for the systems to communicate using TCP/IP network stacks. The Mashbot system sends emails using SMTP.

2.1.6 Memory Constraints

The Mashbot server requires no greater than 1 gigabyte of RAM memory. The web client requires no more than the minimum memory a modern desktop computer commonly has, approximately 256 megabytes of RAM.

2.2 Product Functions

Mashbot should be able to:

1. Schedule content for various services to be published concurrently

2. View and Compare historical metrics of campaigns

3. View/Create replies to content

4. Maintain users and approvers of content

5. Set up keyword alerts for "watched" services

2.3 User Characteristics

The target user is a small to medium business employee who understands the basic capabilities of social media.

2.4 Requirements Apportioning

Priority	Description
1	Mashbot can not be released unless it satisfies these requirements.
2	Mashbot may be initially released without satisfying these requirements. Having these requirements unfulfilled must not create dangers to the system. They should be implemented in the next minor release.
3	These requirements are not expected to be fulfilled by the initial release of Mashbot, but should be implemented in the next major release.
4	These requirements are outside the current scope of the project, but are included to exhibit how our software will improve in the future.

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 Email System

0100 Purpose The external email system is to provide a messaging service from Mashbot to the Mashbot users. **Priority 2**

0110 Input The input is generated automatically by the Mashbot system using settings configurable by the System Administrator. **Priority 2**

0120 Output The output is in the form of an e-mail to an e-mail account, but it does not return any sort of message to Mashbot. **Priority 2**

0130 Data Format The format uses SMTP protocol. The actual messages are provided by Mashbot. **Priority 2**

3.2 Functional Requirements

3.2.1 User Accounts

0140 User Account Types and Permissions The system categorizes users on the basis of roles and privileges. Within these roles, the system also categorizes users based on the roles that they have within individual products. These are referred to as user account roles.

Mashbot Campaigns supports the following account roles:

0150 Contributor **Priority 3**
0160 Approver **Priority 3**
0170 Publisher **Priority 3**

0180 A user may possess more than one role. **Priority 3**

0190 Roles reflect actions that can be performed by a user. **Priority 3**

0200 Roles can be assigned to a user account for individual products. **Priority 3**

0210 Contributors may create new content, import existing content into the system, edit content, and delete it. They may also submit these actions for approval. **Priority 3**

0220 Approvers can approve actions performed by contributors **Priority 3**

0230 Publishers may schedule or immediately initiate actions put forth by contributors and those approved by approvers. **Priority 4**

0240 User Account Creation - New user accounts can be created. **Priority 1**

> **0250** The system may contain any number of user accounts. **Priority 1**
>
> **0260** Certain pieces of information are required to create new accounts. **Priority 1**
>
> The following information is required for any new user account:
>
> > **0270** Username **Priority 1**
> > **0280** Password **Priority 1**
> > **0290** Name **Priority 1**
> > **0300** Email Address **Priority 1**
> > **0310** Group Membership **Priority 1**
> > **0320** User Account Type **Priority 1**

0330 User Account Modification The system allows users to modify their accounts once created. **Priority 1**

> **0340** The system requires that a user have logged in before modifications can be made. **Priority 1**
>
> The following user account information is modifiable by all user types:
>
> > **0350** Password **Priority 1**
> > **0360** Email Address **Priority 1**
> > **0370** Name **Priority 1**

0380 User Account Deactivation The system allows user accounts to be deactivated. **Priority 3**

> **0390** The system denies user who have been deactivated from accessing the system. **Priority 3**
>
> **0400** If an account has any history associated with it, it can only be deactivated and not deleted. **Priority 3**
>
> **0410** If an account has no history associated with it, it can be deleted from the system. **Priority 3**
>
> **0420** A disable account can be undisabled **Priority 3**
>
> **0430** It is possible to disable all accounts except for the System Administrator account. **Priority 4**

0440 Username and Passwords

> **0450** The system gives users the ability to reset their password. **Priority 2**
>
> **0460** Individual passwords can be reset. **Priority 2**
>
> **0470** The system only allows users to change their own passwords. **Priority 2**

3.2.2 Marketing Campaigns

0480 A campaign has the following components:

> **0490** Name **Priority 1**
> **0500** Pieces of content **Priority 1**
> **0510** Schedule **Priority 1**
> **0520** User/Group Permissions **Priority 2**

0530 A schedule is a mapping of times to publishing actions. It may contain any actions a publisher can perform, and these actions are performed at the associated time. **Priority 1**

0540 A piece of content may take the following forms:

> **0550** Text **Priority 1**
>
> **0560** Image **Priority 1**
>
> **0570** Audio **Priority 3**
>
> **0580** Video **Priority 3**

3.2.3   External Service Accounts

0590 Mashbot will allow for the association of Mashbot accounts with external service accounts.

0600 Mashbot will provide an interface for authenticating a user account to an external service account **Priority 1**

0610 Mashbot will provide a standardized method of interacting with external service accounts **Priority 1**

3.3   Security Requirements

0620 The system encrypts data over a direct connection between the web client and the server. Priority 1

0630 The system allows for the backup of the data system to local or remote non-volatile storage systems. Incremental backups should not create outages and full backups do not interfere with user interaction for more than 10 minutes. Priority 1

0640 The system is configurable to e-mail warnings about multiple failed login attempts from the same user. These warnings are sent to the System Administrator. Other security risks of this type are the responsibility of the System Administrator. Priority 3

0650 The system allows only valid users to log into the system. A valid user is one which has not been disabled or deleted and exists on the system. Priority 1

0660 To log onto the system, a user provides their valid username and password. Priority 1

0670 The system uses the configured authentication module. The authentication method is configurable by the System Administrator. Priority 1

0680 The system allows the System Administrator to configure a timeout after which a user is automatically logged out of Mashbot. Priority 1

4   User Interface

The user interface will consist of a tabbed navigation bar that unifies the sitewide navigation, as well as module specific navigation as needed. Tabs:

- Dashboard
- Create
- Schedule
- Explore

4.1 Dashboard

The dashboard consists of graphs and charts to give the user a quick view on how their campaigns are performing. Metrics include:

- Clickthrough rate

- Page Views

- Number of Comments

Service plugins can define additional specialized metrics to track, as well, for instance "retweets" for Twitter. A panel is available to give more information on each metric as it is selected. See Fig 1

4.1.1 Create

This view allows users to create campaigns and fill them with content. This view is also used when users need to edit an existing campaign. See Fig 2

Add content   A user can add content via the add content button near the top of the view. This will prompt the user to select the content type, which is populated by the services the user currently has access to via credentials stored in the system. This will create a section in the main part of the view that allows the user to add individual elements of that content type, each individually scheduled. Each row line item will allow the user to schedule, edit, or delete that content type.

4.1.2 Schedule

Scheduling content   Users can drag items from the left hand bucket of content to the calendar to schedule content. The content will receive a default golive time of 12am on the day the content is dragged to. If the user desires a different time, he may click the content in the schedule and assign the proper time. See Fig 3

Calendar   The calendar allows the user to manage when content goes live, and gives a visual representation of the actions taken on content. It is clear when content goes live and when (if) it is deleted. The user can page from month to month to schedule content to any day desired.

4.1.3 Explore

This view allows users to get a pulse on what information social media contains. This includes the ability to set up monitored searches for services that support keyword search via api. This also will aggregate data gathered from comments on content that has been published as part of a given campaign
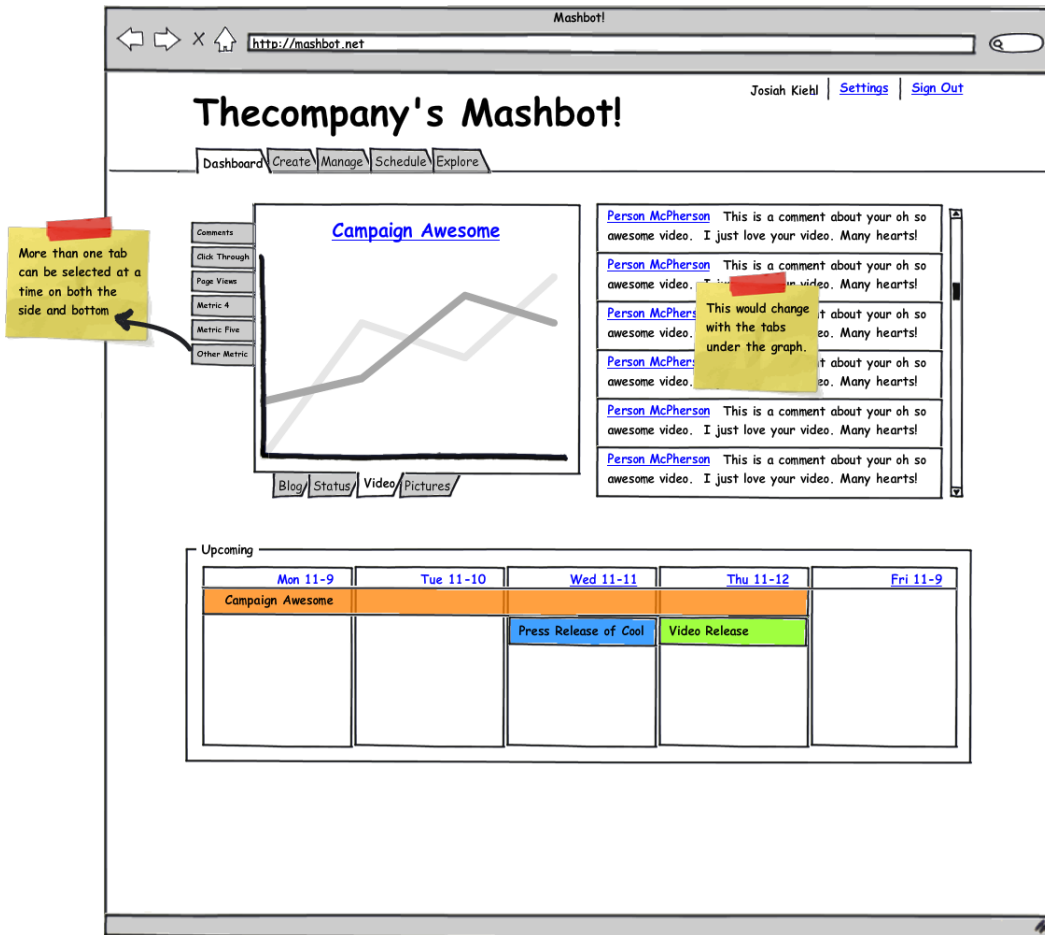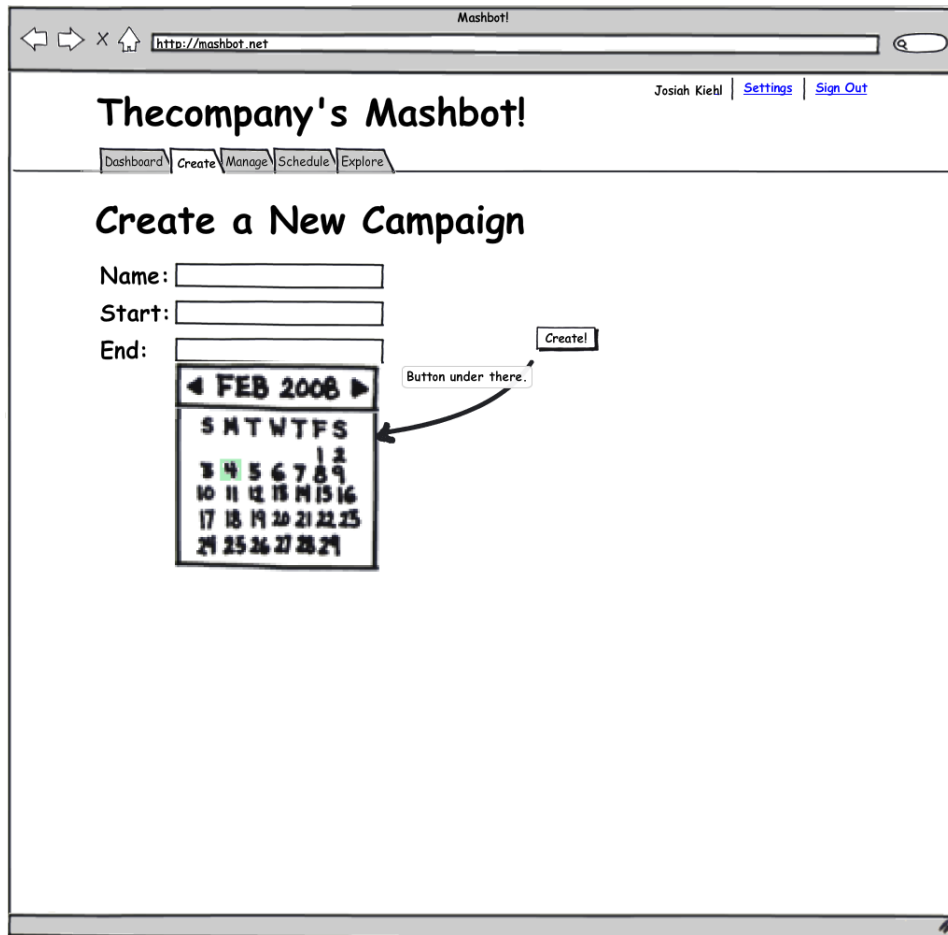
Figure 1: The dashboard interface
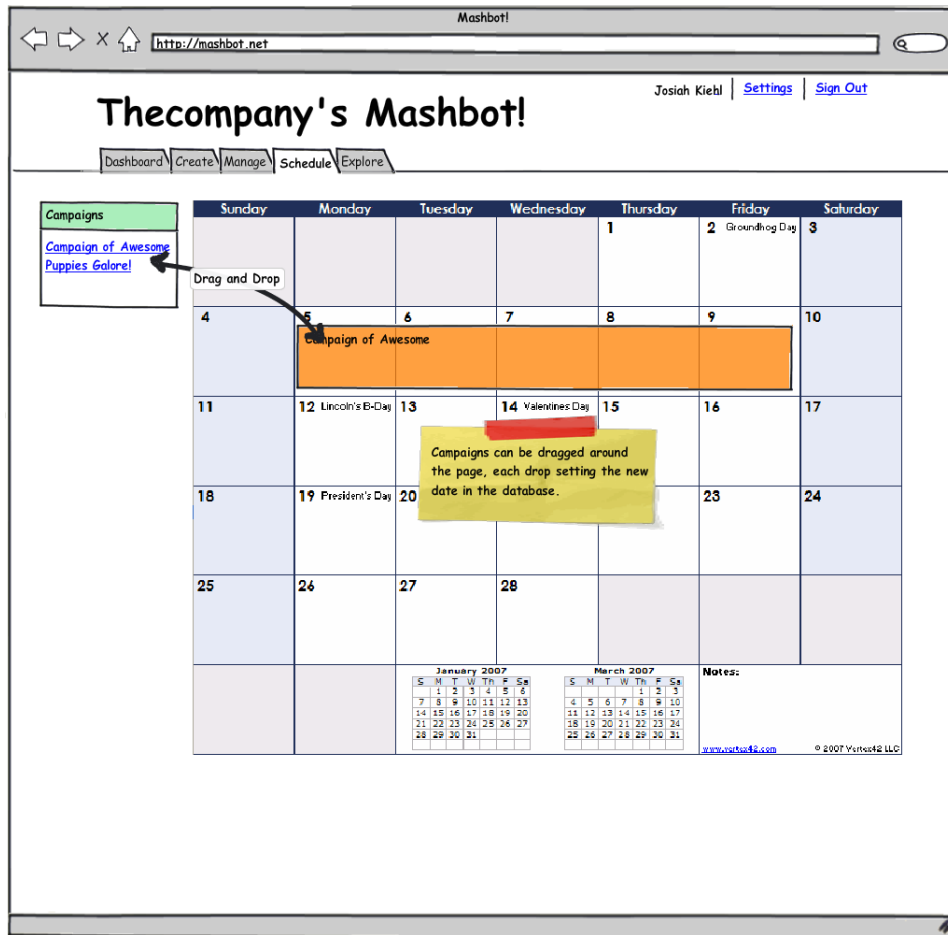
Figure 2: The content creation interface
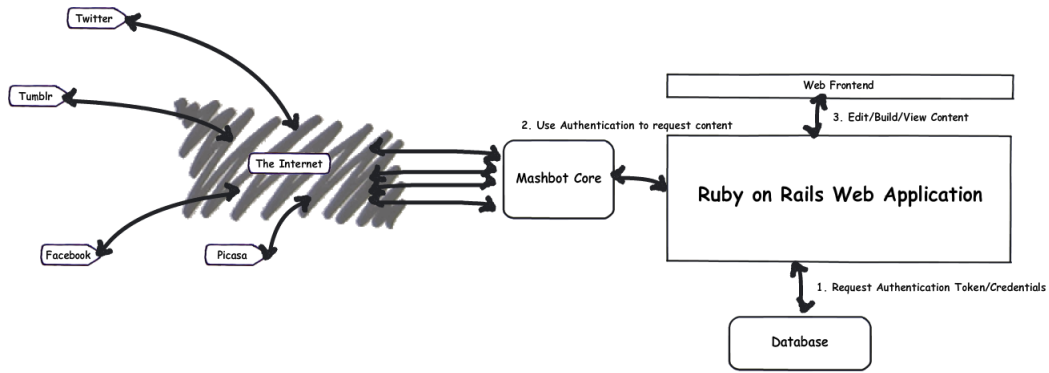
Figure 3: The scheduling interface

Figure 4: The Data Flow

5 Preliminary Analysis

Mashbot is a data driven web application. It aggregates data from various web services. This figure shows the flow of data through the web application. There is a core that handles all requests for various data needed by the application. Authentication information is retrieved from the database and used to request content from services.

6 Use Cases

1. A user should be able to register a new account

2. A user should be able to log in

3. A member should be able to log out

4. A member should have a profile

5. A member should be able to modify their profile

6. A user's email should be verified when registering a new account.

7. An admin should be able to modify accounts

8. An admin should be able to suspend accounts

9. An admin should be able to delete accounts

10. A member should be able to monitor trending topics regarding their campaign

11. A member should be able to monitor facebook groups related to campaigns

12. A member should be able to view @replies to tweets related to their campaigns

13. A member should be able to see responses to blog posts related to the campaign.

14. An admin should be able to perform user account actions in bulk

15. An admin should be able to see all campaigns

16. An admin should be able to delete any campaign

17. An admin should be able to edit all campaigns

18. Mashbot campaigns! campaigns should allow multiple users to collaborate on a campaign

19. Mashbot campaigns! should support multiple users

20. A member should be able to store authentication for supported services

21. A member should be able to add additional services to an existing campaign

22. A member should be able to delete individual campaign elements

23. Members should have hierarchical permissions

24. A campaign should have workflow approval process

25. A member should be able to "unpublish" a campaign

26. A member should be able to delete a campaign

27. A member should be able to schedule events in bulk

28. A member should be able to schedule "live dates" for individual events.

29. A member should be able to delete existing content from supported services

30. A member should be able to see the content they have published in all supported services

31. A member should be able to push to Facebook in a campaign

32. A member should be able to post to a blog in a campaign

33. A member should be able to post to Twitter in a campaign

34. A member should be able to create a new campaign

35. A member should get notified when activity occurs in a campaign they're working on