SpeedRoute

Design Document

SpeedRoute is a web-based tool that allows its users to create, share and view “routes” for the purposes of speedrunning games. (Speedrunning: <https://en.wikipedia.org/wiki/Speedrun>). SpeedRoute presents an easy way to create top down, map-based routes to be used in speedrunning, complete with explanations and notes. In this manner, a person new to speedrunning can more easily understand the routes to use in videogames by looking at routes made by the more expert in the community, while the advanced players can more easily identify problems with their current routes and discover new possibilities.

This document outlines the basics of the services provided by SpeedRoute, including the various concepts used, and then goes more into detail on the technical aspects of the platform and how it should be implemented.

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# Introduction

SpeedRoute uses the material style guide designed by google to display to users. SpeedRoute does not support small screen devices, as the application itself would not be suitable for such little screen space. No attempt is made to provide good mobile device support in the application.

# Overview of the system

## Landing page

The landing page of the platform is used to demonstrate the services provided to users, as well as providing clear connections to the various subsystems of the application, including searching for routes in the route workshop, as well as being able to register/login and create new routes.

The landing page is fundamentally divided in three parts. The first part is a news feed of updates made by the developing team. This news feed is composed of the most recently released article from the development team’s blog, as well as links to a small number of previous articles and a link to the blog and archive.

The second part of the landing page is a redirection to the route workshop page. The redirection is made by asking the user to select a game profile from a dropdown list and clicking the search button. The redirecting section includes a note for users in case the game they are searching for does not exist on the platform. This note directs users to register or login on the website and submit the game profile themselves.

The third section of the landing page is the register/login segment, and, should the user already be logged in to the website, allows the user to create a new route, jump to a recent route he may have created and submit a new game profile.

## Game profiles

Because routes are specific to the game being played, there is a need for SpeedRoute to collect all the assets needed for all the games on the platform. A game profile encompasses the map or maps used to represent the game world, customized assets, including but not limited to, icons, pins, images, colours, sounds, etc. A game profile also includes meta data about the game it is representing. This includes title, developer, release date, description and other such information, along with speedrunning specific information, such the world records for that game and category and links to other resources.

Because new videogames are constantly being speedran by players, and because of the need to keep the list of game profiles updated, the list of game profiles supported by the platform represents a very real problem of maintainability. Because of this, SpeedRoute offers its users the ability to easily create and submit new game profiles to the service, so that they are available to other users. On submitting these new game profiles, the platform does very little work on the items in question, and this responsibility is mainly transferred onto the user in question.

Game profiles submitted by the community can be accepted into the system, and if so happens, they are available for other users on the platform to use and view. At any one time, there should only be one version of a game profile on the system for a given game. While users are informed if they try to submit a game profile for a game already on the platform, submitting a copy is allowed, under the guise that this new version is somehow improved over the current version. If such happens, these will be considered on a case by case basis, as updating a game profile for which routes already exist might make these.

## Routes

The main element of the service. Routes represent all the steps players take to complete a game in a speedrunning environment. These are built upon the resources provided in the game profile for which they were made, and are encompassed mainly by a series of checkpoints interconnected in line segments, with notes, videos, images and explanations given by the creator of the route.

The route also includes meta data including its name, description, date of creation, times achieved using the route, links to external resources, as well as meta data relevant to the game in question, such as the category of the route (any%, 100%, glitchless%, …).

Users can create as many routes as they want, for how many games they want, provided these exist on the platform. A user may create multiple routes for the same game and category, should he wish to.

Routes may also have versions. As speedrunning routes constantly evolve, these changes can be represented on the routes in the system with versions. Versions work like forking, where the create of the route may clone the route with a new version number and update this new version accordingly. While viewing a route, a user can very easily cycle through the various versions that the route has taken throughout its lifetime. Note that users may edit their individual routes without creating new versions. This is useful if the route contains a mistake, in which case, creating a different version of the route would not make sense.

Routes are publicly published on the platform, and can be seen by any visitor. These routes can be rated by other users, who can also leave comments about it.

### Route creation

When first creating a route, the user is prompted to select the game profile to use from a list of supported games on the platform. After choosing the game profile to use, the user is prompted for the route category and a title. After supplying this information, the route is created and the user is redirected to the route editing page.

The route has now been created and can be edited and published on the platform once the user chooses to.

### Composition of a route

A route is composed of the following information and data.

#### Metadata

Metadata includes the following:

* Title
* Game
* Category
* List of versions
* User that created it

These are the elements for each route. However, there is additional information specific to each version of the route, and each version can be thought of as its own independent route.

Each version of a route has the following:

* Version
* Description (optional)
* Quickest achieved time (optional)
* Creation date
* Last update date
* Video of the route (optional)
* Images (optional)

It is important that data such as description and quickest achieved time are dependent and attached to a specific version of the route, as these pieces of information can constantly change as the route suffers changes.

#### Checkpoint

A checkpoint is a relevant point in the route that the creator of the route wants to highlight. This could be things such as mission completions or item acquirements. These are represented by a pinpoint on the map of the game being routed. When first creating a route, the creator should place the initial checkpoint for the route. This initial checkpoint symbolizes the starting point of the route, or in other words, the starting point of the game. The reason this starting point is not already defined in the game profiles is because games might have different starting points depending on other conditions, or the category being routed might not necessarily start at the same place the game starts in.

Checkpoints are the main element of a route. The various checkpoints of a route are stringed in sequenced and connected using line segments (more on these later) to create what is essentially the path the player should take in the game. Checkpoints are always associated with a point on the map, or one of the maps of the game, should the game have more than one map. The last checkpoint in this list is considered the end of the route and thus the end of the speedrun.

Checkpoints have the following information included in them:

* Map position
* Whether it represents a timer split or not
* The expected time (optional)
* Brief title (few characters)
* Description (optional)
* Images (optional)
* Video (optional)
* The previous checkpoint
* The next checkpoint

The title is forced to a small number of characters as this should be concise enough as to only transmit the necessary information about the nature of the checkpoint. These are a few examples of possible brief titles: “Complete mission 2”; “Get hookshot”; “Enter palace”;

These short titles are a quick overview of what the checkpoint is about and should not describe what the player must do in depth, or what techniques to use. For this detailed explanation, the description field of the checkpoint should be used.

Along with the description for the checkpoint, images and videos can be attached. These should be used to demonstrate the checkpoint in actions, and can be used for example, to explain a particular trick or technique the player should use.

#### Path

Paths are the line segments that connect two individual checkpoints together. These paths should represent the path players take when going from one checkpoint to the next as best as they can. Paths can be made up of multiple individual smaller line segments for more complex shapes, for example, representing the quickest streets from one place to another. While paths are fundamentally less important than checkpoints these can still have a description, images and videos attached to them.

This extra information is useful, should the pathing between two checkpoints have intricate techniques or tricks associated with it.

#### Status

The status information is a tool that allows the creator of the route to transmit the expected status of the player at any point in the route. The status is highly dependent on the game being played and can be for example, the current equipment of the player at any one point in the route, or how many coins a player should have at a certain point.

This status tool can be used or not by the creator of the route. The creator may choose to create fields in the status information for the various elements he chooses to track. For example, the creator may specify an integer meant to track the amount of money the player has during the run, or a list of strings to track the currently equipped items at any one point in the run.

This information can then be updated at selected checkpoints or paths during the run. For example, the creator may choose to track an integer, which he calls money, and with a starting value of 10 at the start of the route, and at the second checkpoint in the route update this value to 5, signifying that the player has lost money (possibly by buying an item in game). This update can be relative, as in, subtract -5 from the current value, or it can be absolute as in, set the value to ‘X’.

When viewing a route, any user can select a point in the route and look at the expected status at that point.

This functionality is useful for someone learning the route, by learning what items or progress he should have at any one point in the run. It is also useful when creating a new route that is being worked on, as it allows the creator to more easily understand what kind of possibilities are available to him at any point in the run.

Because the status information can be statically calculated based on all of the events present in the route, a user may also view a full history of status changes and where they occurred. This may be useful, for example, if a user is trying to understand where a certain event has occurred in the run, such as, “where was this item acquired ?”.

#### Events

Events are used to update the contents of the status information. These are attached to checkpoints or paths by the creator of the route and can be viewed when selecting one of those elements which contains an event.

### Editing a route

Routes can be viewed in two modes. Viewing mode and editing mode. Viewing mode is the default mode. It allows a user of visitor to the platform to view the route, including all of its versions, checkpoints and paths. Editing mode is only available to the creator of the route and can be switched to and from viewing mode at will for the creator. It allows editing the route, including its metadata or creating a new version of it on the fly.

When working on a route, the application will provide the user with tips and best practices for building the route in the most efficient and effective way. Things such as, when best to use custom icons, or what to write in the description of checkpoints are good examples of information useful for a new creator in the system, and helps creating a better catalogue of high quality content on the platform.

### Publishing a route

Upon completing a route, the creator can choose to publicly publish the route on the platform. In doing so, the route will be publicly available to all users and visitors and can be browsed using the route workshop system.

The route will be open to being rated, and comments may be made on it.

At any moment, the creator of the route should be able to make the route private, or remove it entirely from the platform.

## Route workshop

The route workshop is the place users and visitors alike can search for routes. Routes can be searched based on their game, category and title, and ordered by a multitude of different properties, such as date of creation or overall rating.

The workshop allows logged in users to rate and leave comments on routes that they visit. Routes may also be flagged for inappropriate content.

### Publishing a route on the workshop

When a user has finished a route they have created, they can publish it publicly on the route workshop. The platform will guarantee that all required fields for the route have been filled in, and only then will the route be published.

After a route has been published it can be removed from public access. The route may also be edited, or new versions added all the while the route staying public.

### Viewing a route

Any user, whether logged in or not is able to view a public route on the route workshop. Upon entering the route view, the user will be redirected to the most recent version of the route.

### Submitting feedback to a route

Logged in users have the ability to leave ratings on routes on the workshop. The rating works on a 5-star system, and an average of the score of the route is calculated and publicly shown, as a way to separate good routes from bad routes.

Logged in users may also leave comments on the route, should they wish to. Comments are meant to point out problems with the route and/or congratulating or otherwise complementing the creator of the route. Comments left on a route can be flagged for inappropriate or otherwise irrelevant material, and can be subsequently removed by an admin of the platform.

Likewise, routes may also be flagged by logged in users. These are recorded and analysed by an admin, who will be able to remove the route from the platform.

## User profiles

Users can register an account on the platform, that allows them to create their own routes, submit game profiles, as well as rate and comment on other user’s routes.

### Registering on SpeedRoute

Registration on SpeedRoute requires the use of a third-party authentication system. This not only allows users to register faster, as they don’t need to sign-up with an email and password, and removes the requirements for the platform to store and handle password and other user related information that may be sensitive.

Third-party systems planned for support include Google Sign-in and Facebook.

Other third-parties may be supported in the future.

### User information

User profiles have the following information associated with their account:

* Name
* Email
* Game profiles submitted
* Date joined
* Avatar
* Routes submitted
* Links to other user profiles on other websites

The information on each user on SpeedRoute is intentionally kept as basic as possible. Allowing the users to “express” themselves or show their expertise is not a priority of the platform. Should a user pretend to show such information he can add links for other profiles he has on other platforms. These links are arbitrary and are up to the user to add to their profile on SpeedRoute

The user has privacy options for possibly sensitive information, such as email and join date.

### Deleting an account

Deleting a user account is allowed on demand, should the user wish to delete their information. This deletes all the user’s information from the platform, including any created routes. Game profiles submitted by the user may only be removed if these are not yet accepted on the platform and are still in review process. Should these game profiles already be approved on the platform they will no longer credit the original author, granting the user privacy. Deleting game profiles already accepted on the platform would destroy other routes created by other users.

### User email notifications

Users will be able to opt in for email notifications on the platform. These can include such things as new comments made on their routes, their submitted game profiles have been accepted, among others.

The settings will by default be enable upon the user registrations, but they should readily available and easy to find and understand.

# Website map

The following is a full map of the website in URLs:

* Speedroute.com/
  + Landing page for the platform
* Speedroute.com/workshop/\*
  + Main page for the route workshop. Further pages in the workshop, including route listings and route page (listing of the route, not actually looking at the route) are done using client-side routing.
* Speedroute.com/route/[id]
  + Page viewing the route specified in the id. Does not use client-side routing.
* Speedroute.com/user/[id]
  + Page viewing a user in the system. Does not use client-side routing, and should not use ajax calls for the most part. Information about the user should be transmitted in the first request for the page from the client.
* Speedroute.com/api/\*
  + Api routes for the speedroute api
* Speedroute.com/blog/[id]
  + Single article from the blog. Does not use client-side routing, and should not use ajax calls for the most part. Information about the article should be transmitted in the first request for the page from the client.
* Speedroute.com/public/
  + Publicly accessible resources for the platform

# Database

SpeedRoute makes use of MongoDB to store all its data.

# Use cases

# Interfaces

# Implementation

# Testing

# Discussion

# Credits