

# GSoC Proposal

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## Abstract

This is my proposal for participating in Google Summer of Code. It focuses on VPM-B algorithm implementation for Subsurface project.

## 1 Subsurface Questions

### 1. **When did you first hear about Subsurface?**

I'd heard about the project's existence before, but it's safe to say that I read anything about it after GSoC accepted projects list announcement.

### 2. **Do you have any diving experience? (this is not essential, we have devs that are not divers)**

No.

### 3. **What attracted you to Subsurface?**

At the beginning, scope of proposed projects and technology (c++, Qt). Later on, I stayed because of very responsive and well-disposed community. Another important factor was the way the code is written (MVC, clean structure). I believe I can learn a lot working for this project.

### 4. **What other open-source tools do you use?**

I almost don't use not open-source tools. I work on Gentoo with KDE, using Kate, KDevelop, Clementine, Okular, git, Qt, Spring Project etc. I also use LaTeX and depending on the job other needed software (Postgres, Apache).

### 5. **Describe any participation by you in the Subsurface community (e.g. created tutorials, submitted bug reports, asked or answered questions on mailing lists or IRC).**

I focused on the problems around adding images to dives. Talked on IRC with a few people about it and later discussed it on the mailing list. I also fixed some small bugs in other parts (EXIF data) which appeared after adding my patches.

6. **Describe any contributions you have made to Subsurface development (e.g. bug fixes, translations, packaging, testing).**

As mentioned above, I worked on the images infrastructure. I had to do a small refactor in existing images checking in `dive.c`, then added warning in the setting time shift dialog.

7. **In exactly two sentences, why should we pick YOU?**

I have already proven that I am capable of accomplishing GSoC project two years ago (Inkscape). I'm also motivated to learn as much as I could and because of this, stay longer with some open-source project.

## 2 About Yourself

1. **What is your name, email address, and irc nickname?**

Jan Darowski, jan.darowski@gmail.com, Slagvi. Poland, University of Warsaw.

2. **Describe any plans you have for the summer in addition to GSoC (classes, thesis, job, vacation, etc.).**

I have my finals around 15-30 of June. I also plan a week long reenactment trip abroad, the date is not yet decided but I will have my laptop with me so I could still work a little and stay responsive.

3. **What programming projects have you completed?**

I've completed Inkscape GSoC project 2 years ago, created Article collector - my solo project for collecting articles from predefined set of pages. Used to gather daily set of information into one file, from which it can be later converted into mp3. Written using Qt, displays a main page of some service, after clicking on a link to the articles subpage, article text is being extracted from the source using some of the rules defined by the user.

Later, I've spent 3 months on the Ravels project with my friend. It's finished and ready to use engine for managing classic RPG sessions. Some kind of a tool for GM. It consists of many modules, including easy map creation, simple music player, characters sheets, "intelligent" manual and of course dices, a set of rules that calculate the results of some actions for given characters, items etc. The program is RPG system independent so it can be scripted to work for many different worlds. It uses almost only Qt, including QScript for customization.

Right now I work on the Buried Secrets tactical game as my final group project at the university. It's a written with Qt, Box2D and sfml tactical, realtime game, a little bit similar to Commando: behind

enemy lines or Desperado. In this moment, it's around MVP phase of development.

I've also spent 6 months working in the corporation on the CRM system but it was mostly web dev which I don't like. Of course there was also lots of university projects or other, not finished small ones.

**4. What are your favorite programming tools (editor, etc.)?**

I almost always use git. When I need a database I use Postgres. For small, quick tasks I use Kate, for bigger Qt projects QtCreator, for Java Eclipse and for other projects KDevelop. In fact I haven't used the last two for some time.

**5. Describe any work on other open-source projects.**

I did a 'New from template' project for Inkscape two years ago. I didn't stick for longer as there were some things I didn't like. Besides that, I'm thinking about setting the Ravels project mentioned above free. I believe it's a great piece of work and can be used by many.

**6. List other GSoC projects you are applying to.**

Subsurface is the only one. I prefer to prepare one application than share time between two or three.

### **3 Proposal**

I've decided to apply for the VPM-B proposed project. I believe I'm capable of finishing it during the GSoC, adding a useful feature to the Subsurface. Right now, I'm familiar with all the basic concepts of the algorithm, started writing a set of implementation notes on how it works and prepared a plan for creating new, fully objective c++ implementation.

### 3.1 Timeline

27.04 - 26.05	Running existing Fortran and C implementations of algorithm. Studying existing Subsurface planner code.
26.05 - 14.06	Coding basic VPM implementation. Without Boyle's Law and gas changing stops.
14.06 - 20.06	Preparing basic testing infrastructure Verifying current results with modified existing implementations.
20.06 - 05.07	Adding remaining features to the algorithm (Finals at the university).
05.07 - 10.07	Testing algorithm against existing implementations.
10.07 - 17.07	Buffer for unexpected problems.
17.07 - 07.08	Integrating new code with Subsurface planner.
07.08 - 17.08	Receiving community's feedback on needed improvements. Fixing possible bugs. Writing documentation for new features.

### 3.2 Comments

I assume that the last 4 days should be a safety buffer so I don't plan anything for this period and hope to have all the needed work done before 17.08.

Before 26.05.2015 I'd like to verify how subsurface scheduling testing is organized and decide how to prepare my testing part. I think that it can be better to integrate my testing infrastructure with existing code (rather than keeping it as separate project) but first I need to get more familiar with communities point of view and what already exists.

As for the work after the GSoC time, I'd love to help improving existing planning mechanisms. Maybe adding more parametrized scheduling and fixing some bugs. As my patches during application period mostly related GUI and I really like how it's designed, I would also like to help improving this part.