

## GSoC Proposal for Haiku

### Add Haiku Support for new Harfbuzz library

- **Full name:** Deepanshu Goyal
- **Timezone:** +0530
- **Email address:** code.deepanshu@gmail.com
- **IRC username (freenode.net):** digib0y
- **Trac username (dev.haiku-os.org):** digib0y
- **Trac ticket(s) containing patches for Haiku/ Pull requests:**
  - <https://github.com/haiku/website/pull/26>
  - <https://github.com/haiku/website/pull/41>
  - <https://github.com/haikuports/haikuports/pull/1204>
  - <https://github.com/HaikuArchives/ArtPaint/pull/54>

We also had technical discussions over few issues in ArtPaint which you can checkout: <https://github.com/HaikuArchives/ArtPaint/issues> , I have also commented few lines of code in one the issues which you might be interested in!

Apart from these I have submitted a patch to Haiku however most of the work on the patch was already done by a previous contributor .

<https://dev.haiku-os.org/attachment/ticket/11518/0001-Implemented-BFont-Blocks-added-build-feature-for-fon.patch>

- **GitHub (or other public) repository:** <https://github.com/digib0y/>
- **Will you treat *Google Summer of Code* as full time employment?**

Yes, I do understand that Google Summer of Code is a full time virtual internship and I have no other commitment to any other internship, job, and exams.
- **How many hours per week will you work?**

I will work for 40-50 hours a week, with give work update on every alternate day to the assigned mentor..
- **List all obligations (and their dates) that may take time away from GSoC (a second job, vacations, classes, ...):**

One day per week will be an off day, most probably weekend only if the goals for the week has been completed.

- **Are you using *Google Summer of Code* to fulfill a university requirement -- internship, class credit, ..? (If yes, you need to provide confirmation that your school approves. Remember, *Google Summer of Code* is a remote software development internship.)**  
No, it's just for playing around with code, develop my skills, have fun and earn profit.
- **Estimated last day of classes/exams:**  
25 April 2017, that means I can start early, explore and learn more about Haiku API.

## Introduction

I am an engineering student of Christ University, Bengaluru, India. I'm pursuing a degree in Bachelor of Technology in Computer Science and Engineering.

I have taken classes on C, learned C++ by reading and working out various books including the one by DarkWyrM which gives an introduction to Haiku API.

I have been a previous Google Code In student where I work with Haiku for the first time, I can recall the first time I ever connected to an [IRC](#) channel during GCI 2014; it was both my interest in the GCI task and my attraction to the positive, friendly environment on #haiku that convinced me to continue working with Haiku.

I am hooked to open-source software development, an ambitious outgrowth of my personal interests to create [free](#) (as in [freedom!](#)) and [open-source](#) content.

- I like to [write](#) and read.
- I love to code.
- I enjoy sharing my experiences.

## Project Proposal

**Title:** Add Haiku support for Harfbuzz library.

### Description:

Text is the primary means of communication in computers, and is bound to be so for the decades to come. With the widespread adoption of [Unicode](#) as the canonical character set for representing text a whole new domain has been opened up in a desktop system software design.

HarfBuzz uses GLib for Unicode functions (to get few Unicode character properties an normalisation). It can also use ICU for this, or a small bundled library called UCDN. If HarfBuzz is built without GLib or ICU, it will use UCDN. Alternatively we can provide the Unicode callbacks to interface with something else.

FreeType is used for loading fonts and glyph metrics etc. We can also build HarfBuzz without FreeType and use HarfBuzz's internal font functions.

Font rendering should be reworked to use the HarfBuzz library (The Harfbuzz package contains an OpenType text shaping engine.), instead of just Freetype, providing support for ligatures and bidirectional text output.

### Goals:

- Rendering of Devanagari and other scripts using ligatures properly, allowing use of the system to view and edit text in the Hindi language
- Automatic font installation: This feature involves automatic detection of missing fonts, and installing them.
- Add Haiku Support to new Harfbuzz Library.

### Timeline

- **Community bonding period (May)**

Spend time interacting with community members and learn more about Haiku Project. The period can also be used to further refine, discuss and plan the components of proposal which are not very clear.

Also, help plan out roadmap, create/fix minor issues and familiarize myself with the codebase.

- **First month of coding (June)**

- A survey of current situation of rendering with multiple screenshots taken across different operating systems keeping in mind in web pages, in applications (labels, buttons, etc).StyledEdit & Terminal.

- Create an example application which could render some text using two tools:

- FreeType and Harfbuzz.

- **Second month of coding (July)**

- Exploring the code base in app\_server and learning how to integrate HarfBuzz.
- Integration of Harfbuzz in app\_server rendering infrastructure.
- **Third month of coding (August)**
  - Test for already supported scripts(latin,CKJ) and making sure that integration doesn't break it.
  - Creating Test Suites with Hindi Samples.
- **After Google Summer of Code**
  - I consider my GSoC participation as a starting point of joining a developer community, not a summer gig.
  - Constant work on bugs, enhancements and improving Hindi Rendering on Haiku.
  - Translating Haiku to Hindi, currently it is at 60% however it is poorly translated.

#### **Expectations from Mentors.**

- Answering technical questions.
- Giving advice on how to implement in a better way.
- Help in working on blockers.