Improving voice, video and chat communication with free software
Udit Raikwar

Organization: Debian

1. Personal Details
Name: Udit Raikwar
Email: udit043.ur@gmail.com
Telephone: +91- 90098-75316
Time Zone: UTC +5:30
IRC Handle: udit043
Source Control Username:
* GitHub: udit043

My Blog: http://udit043.blogspot.in/
University: Jabalpur Engineering College
Major: Information Technology
Current Year: 3rd Year
Expected Graduation Date: May, 2017
Degree: Bachelor of Engineering

2. Introduction
Project 'Improving voice, video and chat communication' is already in use but it requires some improvement, fixing some bugs and adding few more features which would be good to have for better use. For implementation of this project idea, the technology stack will include the use of C, C++ and Python etc.

3. Details about the project
Entire project is based on **SIP**, **XMPP** and **peer-to-peer** technology. This project will help people to avoid using proprietary communications tools like Skype, Viber and WhatsApp. Project is already in use but it requires some bugs to be fixed and some more features to be introduce which would be good to have for better use.
So, during Google Summer of Code, I would like to work on this project to solve some bugs and avail more comfort to user.

Project includes reSIProcate components, particularly the SIP stack, project is dedicated to maintaining a complete, correct, and commercially usable implementation of SIP and a few related protocols. In this project we are using SIP and XMPP, SIP was originally designed for VoIP and XMPP for instant messaging.
XMPP is much easier from firewall point of view while SIP works over UDP. SIP supports Peer-to-Peer protocol therefore knowledge of networking protocols would be required while working on this project.

4. Implementation

Solving bugs requires the use of C, C++ and Python with knowledge of SIP, XMPP technology. I would like to work on 3 bugs:

- https://project.freertc.org/issues/25 - **Improve logging (log errno names instead of values):** This bug can be solve by using C++ and an external tracker is also mentioned which will help in solving this bug. Knowledge of SIP would be required while solving this bug.
- https://project.freertc.org/issues/28 - **support for WebRTC client to make conference calls:** This bug can be solve by using C++ and an external tracker is also mentioned which will help in solving this bug. Knowledge of SIP and WebRTC would be required while solving this bug.
- https://project.freertc.org/issues/93 - **Evolution: reply to emails with a SIP or XMPP call:** This bug can be solve by using C and an external tracker is also mentioned which will help in solving this bug. Knowledge of SIP and XMPP would be required while solving this bug.

5. Project Schedule

- **22nd April – 22nd May: Community Bonding Period** – Communication with mentor , discuss ideas and approach to solve some bugs, understand the code to be worked upon and find out what more can be done.
- **23rd May – 5th Jun:** Write code to solve issue #25
- **6th Jun – 19th Jun:** Prepare documentation of project for midterm evaluation.
- **20th Jun – 5th Jul:** Write code to solve issue #28
- **6th Jul – 16th Jul:** Write code to solve issue #93
- **17th Jul – 27th Jul:** Introducing any new innovative feature.
- **28th Jul – 14th Aug:** Perform testing, prepare documentation for the project.
- **15th Aug – 24th Aug:** Week reserved for improvement or medication to certain code if required.

6. Miscellaneous

- Contributed open source to http://cppcheck.sourceforge.net/
  - http://trac.cppcheck.net/ticket/3206
  - https://github.com/danmar/cppcheck/pull/629

- Contributed open source to http://www.biicode.com
  - https://github.com/biicode/biicode/issues/28