

Google Summer of Code 2017

Proposal to Python Software Foundation

Project: Plyer

Sub-organization Information

Sub-organization applying to work with: **Kivy**

Mentors

Akshay Arora (qua-non)

Student Information

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Project Proposal Information


Proposal Title: Kivy: Plyer, a platform-independent api

Proposal Abstract: This proposal is based on description of Plyer, one of the sister projects provided by Kivy Organization. The goal of the project is to extend the support of currently existing APIs for other platforms and provide new stable and platform independent APIs to the users for allowing them to access the features of their desktop and mobile devices.

Project Description:

Current Status - The table below shows the currently available features in plyer. The cells in  implies that the respective API is implemented for that platform and in  implies that the API for the platform is yet to be implemented or is not available. At last, I have also added the additional features which I will be implementing for all the available platforms during my coding period.

The additional features are the one mentioned in the issues page or whose pull request is still pending. I will try to make them mergeable first and will then focus on features of mine. As of now, Plyer has 58 issues and 65 pull requests pending and I will try to reduce them as much as possible.

My aim is to make this table filled with  as much as possible.

I have also shared the appropriate reference links for the APIs which are to be implemented. I have intentionally left the Linux part blank because there are not specific APIs for features available for Linux and I will implement them by using commonly used libraries like dbus, after discussing them with the mentors.

Note: These are still some features for which reference links are not provided but they will be implemented(shown in timeline).

Supported APIs

Platforms

	Android	iOS	Windows	OS X	Linux
Accelerometer			Reference		
Barometer		Reference	Reference		
Call					
Camera(taking picture)			Reference		
GPS			Reference	Reference	
Gravity		Reference	Reference		
IR Blaster					
Notifications		Reference			
Text to speech					
Email(open mail client)					
Vibrator					
SMS (send messages)					
Compass			Reference		
Unique ID					
Gyroscope			Reference		
Light		Reference	Reference		

Battery					
Native file chooser					
Orientation		Reference			
Proximity		Reference			
Audio recording		Reference	Reference	Reference	
Flash					
Wifi	Reference	Reference			
Temperature					
Fingerprint Scanner	Reference	Reference			
In app browser	Reference	Reference	Reference	Reference	
Bluetooth	Reference	Reference	Reference	Reference	
Storage Path	Reference	Reference	Reference	Reference	
Spell Checker	Reference	Reference	Reference	Reference	
Magnetic Field	Reference	Ref. 1 Ref. 2	Reference		
Pedometer	Reference	Reference			
Rotation Vector	Reference	Reference	Reference		
Linear Acceleration	Reference	Reference	Reference		
Spatial Orientation	Reference	Reference	Reference		
Broadcasts (Send & Receive)	Reference	Reference	Reference	Reference	
System Information	Reference	Reference	Reference	Reference	
Camera(Capture Video)	Reference	Reference	Reference	Reference	
In-app Billing	Reference	Reference	Reference	Reference	
Network Information	Reference	Reference	Reference	Reference	
Sharing	Ref. 1 Ref. 2	Reference	Reference		
Speech Recognition	Reference	Reference	Reference	Reference	
Status Bar (extra)	Reference	Reference	Reference	Reference	

Screen Snapshot (extra)	Reference	Reference	Reference	Reference	
Brightness (extra)	Reference	Reference	Reference	Reference	
Internationalization (extra)	Reference	Reference	Reference	Reference	

I have included 4 extra features for if, I face any problem in implementing a particular feature during the time which I have allotted to it in my timeline, then I will replace it with any of these extra ones to utilize time and will work on the former one at last or after the GSoC period.

Access to required hardware:

I personally own Linux, Windows and Android systems and planning to buy OS X and iOS system as the GSoC period starts.

Timeline

GSoC is round about 12 week duration, with about 25 days of Community Bonding Period in addition.

The evaluations will be in three phases i.e. Phase I, Phase II and Phase III, so I have divided my work flow accordingly. I have divided the features according to their “**difficulty level and time required**” and accordingly I have decided the sequence of implementation of features in each phase.

Brief description of each phase is given below and explained in timeline.

Phase I: During this phase, I will be working on the features which can be implemented in lesser time and won't involve much complexities.

Phase II: Will be working on the features which have medium difficulty level and besides this, will implement one or two hard level features which require more time.

Phase III: During the final phase, I will devote my time mainly on the hard features and the left out features(if any) from Phase I and Phase II.

Examples will be provided along with the implementation. During the weekends, I will work on completing the documentation part and writing blog posts.

The detailed timeline is linked below:

Legend: Difficulty Level and Time Required:  >  > 

Time Frame	Start Date	End Date	Task	
Community Bonding	05 th May	30 th May	Requirement Gathering and Documentation For android I need to access Java classes for which I will be using PyJNIus, for iOS and OS X, I need Objective-C for which I will be using PyOBJus, for Windows and Linux I will be using commonly used libraries like ctypes for windows and dbus, gtk+ for Linux.	
	05 th May	7 th May	Skimming the documentation of PyJNIus, PyOBJus, python-for-android	
	08 th May	11 th May	Hands on Objective-C	
	12 th May	20 th May	Learn C++, Cython for development in Windows	
	21 st May	25 th May	Exploring ctypes, dbus, gtk+	
	26 th May	30 th May	Discussion with my mentor on implementation of features whose reference links I was unable to find and if my mentor thinks I am ready to start then I will start working on my Phase I	
Phase I (Weekend)	30 th May	26 th June	Week 1 - 4 During this time, I will be implementing the features which are straightforward and won't take much of the time	
	30 th May	9 th June	Barometer	
			Storage Path	
			Spatial Orientation	
			Spell Checker	
			Compass	
			Gravity	
	10 th June	11 th June	Blog Post on usage and importance of features implemented	
			Complete Documentation	

	12 th June	16 th June	Light sensor	
			Orientation sensor	
			Proximity sensor	
(Weekend)	17 th June	18 th June	Complete Documentation	
	19 th June	23 rd June	Pedometer	
			Magnetic Field Sensor	
			System Information	
(Weekend)	24 th June	25 th June	Blog Post on usage and importance of features implemented	
			Complete Documentation	
First Evaluations	26 th June	30 th June	Make preparations for Phase I evaluation	
			Seek feedback from mentor and make revisions accordingly	
			Submit the Phase I evaluations	
Phase II	1 st July	24 th July	Week 5 - 8 During this time, I will be implementing the features with medium difficulty level along with two hard level features. Besides this, will take the feedback from evaluation and make changes (if any).	
	1 st July	7 th July	Camera (Taking Picture)	
			Accelerometer	
			Notification	
(Weekend)	8 th July	9 th July	Complete Documentation	
	10 th July	14 th July	Gyroscope	
			Fingerprint Scanner	
			Audio Recording	
(Weekend)	15 th July	16 th July	Complete Documentation	

(Weekend)			Blog Post on usage and importance of features implemented	
	17 th July	21 st July	Wifi	
			In-App Browser	
			Camera (Capture Video)	
	22 nd July	23 rd July	Complete Documentation	
Second Evaluations	24 th July	28 th July	Make preparations for Phase II evaluations	
			Seek feedback from mentor and make revisions accordingly	
			Submit the Phase II evaluations	
Phase III (Weekend) (Weekend)	28 th July	21 st August	Week 9 - 12 During this time, I will be implementing the features under hard category and some of easy and medium ones. Besides this, will take the feedback from evaluation and make changes (if any).	
	28 th July	4 th August	GPS	
			Rotation Vector	
			Linear Acceleration	
	5 th August	6 th August	Blog Post on usage and importance of features implemented	
			Complete Documentation	
	7 th August	11 th August	Bluetooth	
			Broadcast (Send and Receive)	
			In- App Billing	
	12 th August	13 th August	Complete Documentation	
	14 th August	18 th August	Network Information	

(Weekend)	19 th August	20 th August	Speech Recognition	
			Sharing	
			Complete Documentation	
			Blog Post on usage and importance of features implemented	
Final Evaluations	21 st August	29 th August	Make preparations for Phase II evaluations	
			Complete remaining documentation	
			Seek feedback from mentor and make revisions accordingly	
			Submit the Phase III evaluations	
Onwards			Keep contributing to kivy and its sister projects and will keep resolving the issues faced by the users while using any of the above features.	

Code Sample

Links to patch/code samples submitted to Plyer:

- ❖ [Android Ambient Temperature Sensor \(Merged\)](#)
- ❖ [Android Ambient Light Sensor \(Merged\)](#)
- ❖ [Android Proximity Sensor \(Merged\)](#)
- ❖ [Android Pressure Sensor \(Merged\)](#)
- ❖ [Android Gravity Sensor \(Merged\)](#)
- ❖ [Android Spell Checker \(Work in Progress\)](#)
- ❖ [Android Gyroscope Uncalibrated \(Waiting for approval\)](#)
- ❖ [Android Magnetic Field Uncalibrated Sensor \(Waiting for approval\)](#)
- ❖ [Android Geomagnetic Rotation Vector Sensor \(Waiting for approval\)](#)
- ❖ [Android Game Rotation Vector Sensor \(Waiting for approval\)](#)
- ❖ [Android Spatial Orientation Sensor \(Work in Progress\)](#)
- ❖ [Android Receive SMS \(Work in Progress\)](#)
- ❖ [Example for Unique ID \(Waiting for approval\)](#)
- ❖ **Some Minor Fixes: [#308](#), [#307](#), [#285](#), [#274](#), [#259](#), [#250](#), [#322](#) (all Merged)**

Other Contributions:

- ❖ [Kivy](#)

Related Work

- ❖ [PyJNIus](#): A Python module to access Java classes as Python classes using Java Native Interface.
- ❖ [PyObjus](#): A Python module to access Objective-C classes as Python classes using Objective-C runtime reflection.
- ❖ [python-for-android/p4a](#): It is a project to create your own Python distribution including the modules you want, create an apk including python, libs, and your application.
- ❖ [kivy-iOS](#): It is designed to compile the necessary libraries for iOS to run the application and manage the creation of the Xcode project.
- ❖ **Developer Libraries:** [Android](#), [iOS/OS X](#), [ctypes](#), [dbus](#), [gtk+](#)

Other Commitments

- **Have you applied with any other organizations?** No
- **Do you plan to have any other jobs or internships during this period?** No
- **Do you have any other short term commitments during this period?** No
- **Do you have exams or classes that overlap with this period?**

My current semester ends on 06th May and next semester starts from 27th July. From 06th May to 27th July, I am completely free and after college re-opens, I won't be able to work full time but I can manage to work for at least 6 - 8 hours per day.

Extra Information

- ❖ **Link to resume:** [My Resume](#)
- ❖ **University Info**
 - **University Name:** The LNM Institute of Information Technology
 - **Major:** CSE
 - **Current Year:** 2nd Year
 - **Expected Graduation Date:** 10th May, 2019
 - **Degree:** B.Tech
- ❖ **Other Contact Information**
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