**Sapelli Designer High Level Specification**

Introduction

The [Sapelli](http://www.sapelli.org/) set of tools have been developed by researchers at University College London (UCL) to support recording and mapping of observations made by illiterate or semi-literate groups Worldwide.

Past uses have included recording of illegal logging activities, animal poaching, wildlife monitoring and indigenous tribal boundaries.

The decision paths and data structures for each Sapelli project are currently manually defined by system users using xml, meaning that non-technical project leaders and field workers have to learn xml.

Sapelli designer should provide an easy to use, graphical interface through which users can maintain the project meta data – namely the project data definitions and processing structures. Sapelli Designer will then generate the xml files necessary to feed into Sapelli collector, thus eliminating the need for users to write xml.

Sapelli designer should also support the editing of existing projects (by uploading existing project definition files for editing and producing a revised project file)

Thus, there are two aspects to Sapelli designer 1) the graphical tools to manipulate the meta data and 2) the output of the project definition files (known as SAP files)

Technical Specification

*What should it run on? Phones? Tablets? Laptops? Operating system?*

It is intended that the initial version of Sapelli Designer will be browser-based to remove the complexity of cross-platform operations. Given that many of the environments for its deployment are low-connectivity, internet access cannot be guaranteed. As such, Sapelli Designer may need to be bundled with server software. However, these requirements and architectural decisions are to be determined in Phase 1 of the project.

Look and feel:

It is envisaged that a graphical tool similar to Adobe XD will be developed.

The project should conform with the Sapelli project branding (attached) which will be provided to the successful technical partner.

GRAPHICAL TOOL

For new projects, the user will need to record the following project-level information:

* Language First version of Sapelli Designer will be in English. Other languages will be incorporated in later versionsName of project – Mandatory
* Version of project – Autogenerated
* Project Id – Autogenerated
* Project shortcut Image – Load a default image. Allow user to modify at later stage.
* Debug version Y/N (if Y selected, a version will be created that enables a log file to be produced)

For existing projects, the user will need to be able to modify any existing project-level information defined in the SAP file.

The user should be able to use the graphical tool to define and manipulate the project’s meta data – for existing projects, the graphical representation should be constructed from the SAP file that has been input; for new projects, the user should start with defining the first node and build from there.

Each node will represent a physical rendering of a mobile app screen and each connector will represent a navigation path that the user may take.

There will be one initial node, but after that paths may vary and overlap and the user must be able to change these paths through the graphical interface. An example structure is shown below:



The user should be able to add/remove/change nodes and connectors at any level. User should be prompted when a node is not connected, i.e., all nodes have to be connected.

Each node represents a rendering of a mobile phone screen and will be one of 6 types: ICON (image), TEXT, PHOTO, VIDEO, AUDIO or GPS. The metadata required for each type is given in the next section.

Note that connectors join:

 Individual ICONS in an icon node

 TEXT nodes or buttons within the node, if buttons have been specified

 PHOTO nodes

 VIDEO nodes

 AUDIO nodes

 GPS nodes

It is also envisaged that, as ICONS are specified for the project, a side panel of images defined to date is displayed so that users may either reuse these images on other screens (with drag and drop) or upload new images. This should also include a standard set of icons, i.e., for save/exit buttons for text screens.

At any time, the user may save and generate a SAP file (as per section xxxx later in this document) which can then be loaded into Sapelli Collector for testing/validation and subsequent use.

Typically project definition will require several cycles, with the users generating a SAP file, testing bit and then reloading to adjust / fine tune.

SCREEN TYPE META DATA SPECIFICATION

**The most widely used field types and attributes in past Sapelli projects are listed below. Please refer to** [**Sapelli Full XML documentation**](http://www.sapelli.org/full-xml-documentation/) **for a full list of the fields and basic and specific attributes that the Sapelli Designer should support.**

For ICON screens, the following options should apply:

Mandatory attributes:

* Screen Id.
* Navigation buttons Y/N
* Number of columns to display
* Max of rows to display on screen before scroll
* Transition

The user should then be able to define any number of icons to be associated with that screen. For each Icon defined:

Mandatory attributes:

* + Value associated with the Icon

Optional attributes:

* + Caption
	+ Name of sound file
	+ Name of image file

For TEXT screens the following options should apply: Mandatory attributes:

* Heading font and font size
* Text font and font size
* Navigation buttons Y/N
* Return to start button Y/N
* Transition
* Free text or list input?

For free text input, the user should also specify how many text boxes (default 1) and each text box must have a label specified.

For list input, they should also specify lists of (optionally nested) allowable values. Each list must have a label and each level must have a default value (eg; label: Where do you live, top level values Europe, Africa, Australia with Europe default; Europe values UK, France, Germany with UK default; UK values London, Cardiff with London default; e.t.c.)

For PHOTO screens the following options should apply:

Mandatory attributes:

* + Max no to be uploaded
	+ Optional (Y/N)
	+ Review screen after capture (Y/N)
	+ Icon filename for capturing photo (validation? Size? Format?)
	+ If Review screen=Y, then icon filename for accepting image and icon filename for rejecting image

For VIDEO screens the following options should apply:

Mandatory attributes:

* + Max no to be uploaded
	+ Optional (Y/N)
	+ Review screen after capture (Y/N)
	+ Icon filename for starting recording
	+ Icon filename for ending recording (
	+ Transition

If Review screen=Y, then icon filenames for

* start playback
* end playback
* accepting recording
* reject recording

For AUDIO screens the following options should apply:

Mandatory attributes:

* + Max no to be uploaded
	+ Optional (Y/N)
	+ Review screen after capture (Y/N)
	+ Icon filename for starting recording
	+ Icon filename for ending recording
	+ Transition

If Review screen=Y, then icon filenames for

* start playback
* end playback
* accepting recording
* reject recording

For GPS screens the following options should apply:

Mandatory attributes:

* + Max
	+ radius Max time to search for co-ordinates
	+ Optional (Y/N)
	+ Transition

SAP FILE GENERATION SPECIFICATION

This must be a zipped file named XXXXX.sap where XXXXXX is the name of the Sapelli project (which can be the and containing the following:

A PROJECT.xml file which has the generated xml. Please refer to the Full XML Documentation for more information about the structure and content.

An img folder which contains all the images (svg, jpg or png format)

An snd folder which contains audio files

A resources folder which contains any HTML, CSS and/or JavaScript files



Images must be automatically resized to fit the size of the screen cells, defined by the number of columns and rows.