

AMBER Smartphone Application Requirements

General Requirements

- App for iOS, Android & Windows
 - Hybrid app (i.e. one code-base deployed and optimised for all 3 platforms)
 - Platform support for the following operating systems with minimum versions in brackets.
 - iOS (8+)
 - Android (4.4+)
 - Windows (10+)
- Ability for user to login via standard username/password, Open Authentication (Twitter, Google, FB) or submit without prior authentication
- Ability for user to select his/her language (availability in multiple European languages).
 - Contractor is not responsible for any of the translation requirements for the app other than supplying the English text in need of translation. Translations will need to be provided in the format specified by Contractor in order to enable ingest into the app. A template and instructions will be provided by the Contractor. Text not meeting the standard will be dealt with by the original translator.

Data

The app:

- must record and submit data and store it in a backend system of Contractor.
- Verification of submitted records will be done by experts from the AMBER consortium in backend system of the Contractor
- Data must be able to be exported or imported into any other systems via API key.
- Data must be imported periodically into System of AMBER project Partner JRC for use in so-called "barrier atlas".
- Contractor fulfils the data protection regulations for storing any personal data. This includes both due to registration of emails etc. and also if there are any issues relating to the fact that the phone location and phone ID are being collected (even if name or email is not).

App Interface

The app will be developed in two separate stages: Tier 1 (simple app) and Tier 2 (for expert users) which is just an extension of the Tier 1 app. These can either be two separate apps or 1 app.



Tier 1 Interface

The app must feature:

1. An “Info” page featuring:
 - project information (1 short paragraph), including Logo of AMBER and EU;
 - data policy page, including personal data protection;
 - Health and Safety advice page;
 - App guide on how to use the app most effectively
 - Link to a website where they can see records of barriers recorded
 - Link for becoming a registered ‘user’

2. A “Record obstacle” page(s) (Table 1)

Table 1. Tier one ‘record obstacle’ page(s) must include the following attributes:

Question	Obligation to submit record	Automatic or manual	Answer types
Photo of Obstacle	<i>Obligatory</i>	Automatic opening, manual shutter control and option to retake image: camera opens upon opening “record obstacle” page	User defined (photo)
Geo-location of obstacle	<i>Obligatory</i>	Automatic, upon taking photo. Prompt for GPS (locate) to be used if not switched on. App records whether location was taken based on GPS, phone signal or both.	<i>lat/long coordinates via GPS chipset on phone and where there is a suitable signal, the phone signal.</i>
<i>Date of record</i>	<i>Obligatory</i>	Automatically, upon taking photo	Date in format Hours/minutes/seconds & Day/month/year
<i>Obstacle type</i>	Optional	Manual	Weir, dam, culvert, ford, sluice, flap gate, loch, grill/bars, natural waterfall, unknown (with images to aid in making the choice)*
<i>Height of obstacle</i>	Optional	Manual	Height categories: <0.5 meter, 0.5 - 1.0 meter, 1.0 – 2.0 meter, 2.0 – 5.0 meter, 5.0 – 10.0 meter, >10.0 meter*
<i>Barrier still useful/in-use</i>	Optional	Manual	yes/no/don’t know
<i>Barrier only partial/complete</i>	Optional	Manual	Only blocks part of river/all river

* A meeting in 2nd November will provide output which may slightly change these categories, but both parameters are expected to remain categorical.





- After recording an obstacle user should automatically be directed to “My records” page for submitting their records.
3. A “My Records” page to:
- hold pending records of user;
 - let user submit records;
 - allow users to edit their submitted records (prior to verification);
 - Show a map of verified records, zoomed to user’s location within the app.
 - Show how many barriers have been submitted in total by user;
 - Their ‘status’ based on the number of their submitted records that have verified i.e. beginner (<5), explorer (5-20), (>20).

Tier 2 Interface

This is for expert users and will be developed subsequently to the Tier 1 app. This will allow further information to be provided. This will utilise the menu selection of obstacle type to get more detailed information specific to that obstacle. All data in tier 2 is optional. i.e.

Table 2. Tier two ‘record obstacle’ page(s) likely to include the following attributes:

Category selected following ‘obstacle type’ question	Additional information collected (pt1)	Additional information collected (pt2)
Weir	(1) slope category (<22, 22-45, >45 degrees, don’t know)	-
Dam	(1) Type: overflow dam; wing dam (not fully obstructing watercourse); check dam; arch dam; barrage; embankment dam; don’t know	-
Culvert	(1) width of culvert; don’t know	(2) height perched above water; don’t know
Flap gate	(1) width of flap gate; don’t know	(2) height perched above water (as with culvert); don’t know
Ford	(1) depth category: dry; shallow (<15cm); deep (>15cm); don’t know	-
Sluice	(1) width of sluice gate; don’t know	(2) depth of sluice gate; don’t know
Loch gate	-	-
Grill/bars	width of bars/grill	-
Natural waterfall	slope category (vertical or near vertical; >45 degrees; <45 degrees)	-



Another page for additional information apart from the barrier type is also requested, also optional (table 3).

Table 3. Tier two ‘record obstacle’ page(s) likely to include the following attributes:

Question	Additional information collected (pt1)	Additional information collected (pt2)
River width	Estimate in meters; don't know	-
Fish pass present	(yes/no/don't know)	Type: None; pool and weir pass; pool and slot pass; rock ramp pass; baffle pass; fish lock; pre-barrage; bypass channel; don't know

All of this information in Tier 2 will be clarified and may be altered following the 2nd November meeting but it is highly unlikely that the information collected will be any more extensive than this, and probably simpler.

User types

Unregistered users

Unregistered users can record and submit barrier data from the Tier 1 interface, however cannot see their scores in the “my records” page.

Registered users

Registered users can record and submit barrier data from the Tier 1 interface, see their scores in the “my records” page.

Expert users

Expert users are selected by the AMBER project. They can record and submit barrier data from the Tier 1 interface, see their scores in the “my records” page. Also they have access to the Tier 2 interface.

Data treatment and verification

Sending data from app

The tender includes the ability to upload the data from the app to a server held by a European Institute (JRC) in Italy. The app must allow the data to be uploaded after the data was collected i.e. when the phone has an internet connection (many of these surveys will take place in the field where there is no phone reception or internet connection).

Storage and Coincident site detection

The company that wins the tender will develop an automated program which detects whether two locations of barriers are in fact the same barrier (based on proximity and barrier information). If considered identical barriers, they are marked in the backend system and will be given the same barrier ID. The company will not specifically maintain the data (this will be the responsibility of JRC) but they



will maintain the application (until 31 May 2020 in the first instance). They will also be expected to coordinate with JRC up until this time to ensure the smooth transfer of data.

Verification of data

Data that has been submitted by a user will be verified by a select group of validators. These are specific people involved within the AMBER project, or selected specifically by the AMBER project, which have the ability to log on to the back-end system. The verification of submitted records from users takes place in the backend-system of the contractor.

Design

- App must be designed to incorporate (or be sympathetic to) existing project design style guidelines including AMBER logo and AMBER colour scheme;
- Design must be included on splash screen and all app screens;
- All required graphical app store assets produced
- Design must incorporate User experience (UX) exercise to minimise problems with engagement/interaction

Timeline

Proposed timeline for development of AMBER App:

- **September 2016:** Outlining App Specifics within Consortium
- **October & November 2016:** Tendering procedure
- **November & December 2016:** production of an initial “Tier 1” prototype in English only within 1 month of commencement of the project.
- **January 2017:** Collation of initial feedback and formulation of stage 2 (Tier 2) development
- **February 2017:** Production of refined version of prototype to include Tier 2 workflow and any revisions to layout as a result of Tier 1 prototype. Test data interactions. Import of data to JRC could be tested.
- **March & April 2017:** Collation of 2nd stage feedback from testing. Includes field testing from a variety of partners. If found to be in order, generation of all language translations would commence and be built into the Release Candidate app along with any design assets and project information.*
- **May & June 2017:** Release Candidate pushed out for testing. Testing, feedback, corrections, bug fixing cycle.
- **June 2017:** Ready for release.

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Support

Annual support encompasses up to a maximum of 4 days of development work per annum to:

- Keep the app functioning correctly in the event that something breaks when a new OS is issued;
- Correct bugs found after release. This includes correcting issues that are down to code-based problems only rather than content-based issues.

The support allocation does not encompass time for feature additions or enhancements. Some alterations may be made at our discretion if sufficient time is available within the remaining year's support allocation. If it is likely that enhancements (e.g. new languages will need to be supported, features tweaked or added etc.) then additional support time can be quoted for based on the project's requirements or expectations.

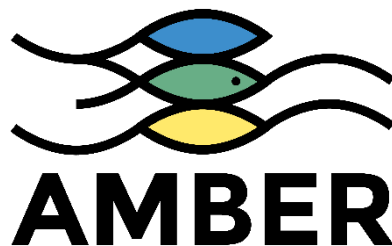
References

Additional information on dam types and fish pass types:

https://en.wikipedia.org/wiki/Dam#Types_of_dams

<http://evidence.environment-agency.gov.uk/FCERM/en/SC060065/MeasuresList/M4/M4T1.aspx>

International standards (including the International Commission on Large Dams, ICOLD) define large dams as higher than 15 m (49 ft.) and major dams as over 150 m (490 ft.) in height. The Report of the World Commission on Dams also includes in the large category, dams, such as barrages, which are between 5 and 15 m.



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