

RefConnect- A mobile social network for refugees¹

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Abstract

The number of refugees, asylum seekers, and internally displaced people worldwide exceeded 50 million during the last few years. This is the highest number reported since World War II and Europe is witnessing the largest influx of refugees running toward neighboring countries where they often face extreme poverty and limited opportunities to rebuild their lives. Technology is often employed as a potential solution to many situations that impact greatly refugees' lives.

Towards this direction the present work is devoted to the presentation and analysis of project RefConnect, a mobile application for refugees and immigrants, mainly in Greece, which implements a social network for refugees and immigrants, assisting the exchange of information, experiences, volunteer offerings and other features. The application is a complementary, in terms of information, to the Greek Asylum Service Application, developed by the same research team, Study in Greece, presented in TMC 2017.

Keywords: RefConnect, Social Network, refugees, mobile application, asylum seekers

Introduction

The number of people fleeing war, violence and persecution is higher today than at any point since the 1940s. Of the 250 million migrants worldwide, 60 million are refugees that have fled their home country or are internally displaced. On the same time, more than a billion people around the world rely on smartphones and their ubiquitous messaging and social media apps, but none more so than the hundreds of thousands of refugees and migrants from Syria and elsewhere. They are relying heavily on smartphone apps, along with other tools like Google Maps, as they risk perilous sea crossings, skirt unfriendly border crossings, and try to keep in touch with their relatives (ICT4Refugees, 2016).

Since digital technology is playing a big role in the experiences of refugees, governments and international agencies make use of information and communications technologies (ICT) to provide solutions to the problems refugees face. Thus, volunteers around the world began developing apps and other tools to help guide refugees on their journeys, adding to the innovative work under way at humanitarian organizations. The resulting technologies already help refugees to gather crucial information, reconnect with lost relatives, and establish a legal identity in new countries.

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Technologies still being developed promise to provide a wider variety of services, like translators, education services and other needs. (World Bank, 2016). Smartphones are an essential piece of kit for millions as they travel. And this dimension of technology has not gone unnoticed: “*The most crucial item that migrants and refugees carry is a smartphone*” (Behrakis, 2015).

Results of a survey conducted as part of an initiative by the Office of the United Nations High Commissioner for Refugees (UNHCR) to collect data on wireless infrastructure and internet use by refugees. show a high degree of mobile phone and internet use, with 86 percent of youth in their sample owning a mobile handset, and more than half using the internet either once or multiple times per day. There is also a high level of interest in a wide variety of internet based services, particularly social media and news. As mentioned: “*In some cases, mobile phone and internet use among refugees is greater in the camps than when they were living in Syria,*” (Koons, 2015).

The rest of the paper is structured as follows: the next section describes the Study in Greece initiative that, among others, maintains a portal to provide information for the refugees and developed *RefConnect* application. After that, the application itself is presented and analyzed, in terms of the information it provides, as well as some technical information. Finally, the paper concludes with ideas for application extensions and development in the future.

Study in Greece

“Study in Greece” (<http://www.studyinggreece.edu.gr>) is an initiative, aiming to assist the international promotion of the Greek Higher Education Institutes, the Greek civilization and history and support the educational process in Greece, promote the Greek culture and history and contribute to the promotion of tourism and the development of the national economy. It serves as the official web portal of the Greek state, providing information and support regarding studying and living in Greece, to:

- Domestic and international students who wish to, or already study in Greece for a higher education degree
- Students who participate to exchange programs, such as Erasmus+
- Refugees, immigrants and those who need international assistance, in order to foster their integration into the Greek education system
- Any other case of students, or potential students

The initiative is under the auspices of the Greek Ministry of Foreign Affairs and the Ministry of Education, Research and Religious Affairs, both hosting a link to the Study in Greece portal on their websites homepages. A link to the portal is also available on all Greek embassies webpages. Since the beginning of its web presence in January 2015, the portal has received many thousands of visits from potential international students, of any level, asking information regarding studies in Greece, while the popularity of the corresponding social networks continuously grows at a very high rate.

Aiming to offer services to the people who seek international assistance, the “Study in Greece” portal maintains a separate section- portal, in order to accommodate information regarding initiatives targeting to the integration of refugees and immigrants into the society. The portal is available at the following link: <http://refugees.studyinggreece.edu.gr/> and provides a wide range of information, not only regarding education but also distribution of product, shelter, medical assistance and other important services.

The Embassy of the Kingdom of Netherlands in Athens, having realized the importance of the Study in Greece initiative, responded positively to the proposal of developing a mobile social network for the refugees and a corresponding application to implement this network. Thus the *RefConnect* application was designed and it is being developed, already enjoying its beta version. The importance of *RefConnect* is expected to be very high, since it implements a number of features such as:

- A social network for refugees and immigrants which will enable them to communicate, socialize and even find their missing relatives.
- Exchange of information and experiences and answer questions, in a forum-like environment
- Advertisements of interest, like job seeking, hiring opportunities, home rentals- offerings, furniture, clothing, food, etc.
- Ask and offering of help from volunteers, like lawyers, doctors, teachers and NGOs.
- Information regarding the organization of events

The above description corresponds only to the initial requirements set, as the list of features can be extended according to the new needs that arise and can serve as one of the main electronic hubs for the exchange of information, even the critical. In addition, it can be also extended geographically to cover not only Greece, as initially designed but also more countries and regions. The application is able to provide information in a number of languages (English, Arabic, Dari, Farsi, Urdu, etc.). The list of languages is dynamic and can be extended, in order to cover all future needs, while the application itself is compatible with the most popular mobile operating systems. The installation and use of the *RefConnect* is free. The downloading of the application and the data updates require an active internet connection, but the application can operate even in an offline mode, based though on the copy of data stored in the device, since the last update.

The motivation behind the idea for *RefConnect* is related to the volatile environment the refugees face, which is affected by uncertain factors such as war, foreign policy of many countries and mainly the people, and the need to access information, which should be offered in a reliable and timely way, assisting their survival and their everyday life. *RefConnect* was born to provide an environment that hosts as many and accurate solutions as possible, answers to problems and questions each refugee faces. In the ideal way of functioning the application comes will provide the opportunity for every refugee to publish the question, need, information or even his or her concern and to find an immediate response. On the other hand, there are individuals and organizations who want to offer either goods or services, or even something they have not thought, but through *RefConnect* to be given the opportunity to discover that they can contribute and offer something new, acting as the bridge that links refugees with each other and with organizations and stakeholders. It is the point of reference, the common meeting place. *RefConnect* has potentially no borders. It is not addressed in one country but across the globe. This is a very useful attribute which can have a very high added value, as for example, in the case of seeking lost relatives.

RefConnect is a complementary application to the *Asylum Service Application*, developed by the same research team, funded by the Asylum, Migration and Integration Fund (AMIF) 2014-2020, and presented in TMC 2017 (Makris et al., 2017).

Application requirements

The application comes with a user-friendly interface allowing the user to navigate easily and quickly and minimize the bounce rate. Users can install the application in any available device and operating system (Android, iOS, Windows). The main challenges and problems faced during the design of the application can be summarized as follows:

- The content of the discussions. Since the amount of information is too large and cannot be tracked, there will be follow-ups by the admin at the category level while the report option will be available at the discussions level.

- RefConnect aims at being international. It addresses refugees from different countries, organizations and users who want to participate. For all the above the language will be English (different language options will be added at later step of development).
- To prevent common users from opening organization accounts the later will be opened by the admin through “RefConnect CMS”, who will set the organization account which will be further updated from the organization itself. For safety reasons their profile differs from the simple user indicating that they are the original organization.

The architecture described above is shown in Figure 1.

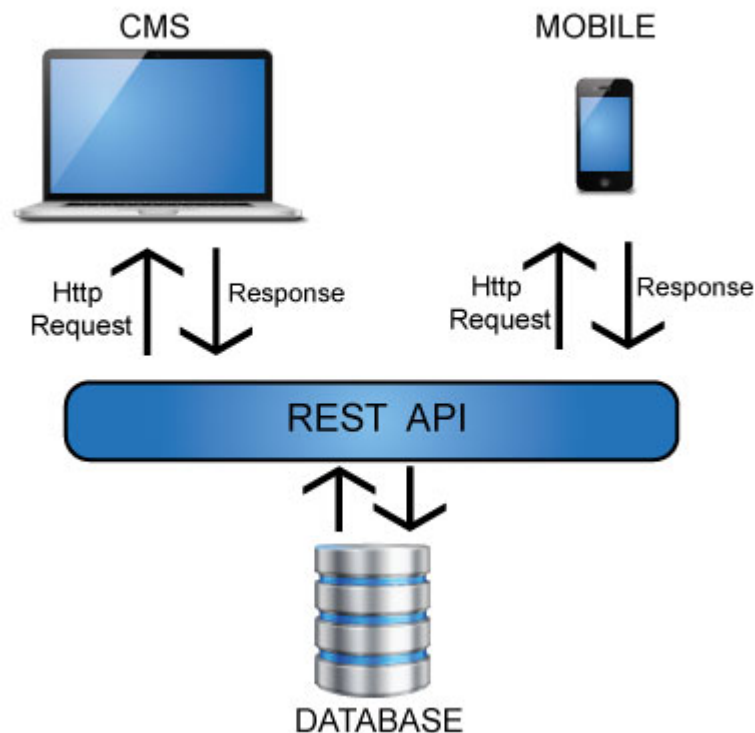


Figure 1. System architecture

The application

The mobile application development was based on Xamarin Platform (Microsoft). The rest api and the cms was developed with Spring JAVA Framework, AJAX (“jQuery Learning Center,” n.d.) and Javascript (“JavaScript,” n.d.).

Information and views of the application

When accessing *RefConnect* the visitor can see the created categories of discussions. There categories fall into two groups: those created by organizations and those created by other individual users. By choosing a category they navigate through all open conversations.

Organizational categories and discussions can only be created by organizations, but all users are allowed to participate. Whenever the organization adds new information, users are alerted by a notification. A representative example of an organization's category can be the events hosted by

the specific organization (workshops, common meals) and each discussion being the announcement of the event or a call to help with the event. On the other hand, examples of categories created by an individual user might be a job search, relocation in another country with each discussion being job title, areas of interest and as paperwork on accommodation, cost of living, or even search for relatives. Finally, category examples of a common user could be offer of food, shelter, clothes, spare parts and more. It should be noticed that, for the convenience of the user, a menu of Hot Categories is available, offering easier access to the most discussed categories.

The visitor can navigate anonymously through the app but must create a user profile, in order to participate. In this profile the user has the possibility to add personal information, upload a photo and even upload a CV. For ease of access there is an easy and quick access to “*My discussions*”, “*Subscribed*”, “*Recent categories*” and “*My profile*”.



Figure 2. Views: (a) Main, (b) Categories, (c) Specific Category, (d) Discussion Topic, (e) Create New Discussion, (f) Subscribed Topics

Since the application operates in a number of languages, topics and categories are available in all of the supported languages. The same applies for new topics created by organizations, while posts created by individuals are automatically translated into the other languages, upon request of the user. This is achieved by employing the online Google translator tool. In this way, when an individual posts, for example, a job offer in Arabic or Urdu, when another user, who speaks Farsi, searches for job offers, the application will provide the Farsi, as well as the rest of the posts, automatically and online translated by Google translator.

Administration system

The administration system “*RefConnect CMS*” was developed seeking to solve one major issue, the need of NGOs to update their content daily and without difficulties. Maintenance of the “*RefConnect*” mobile application includes: Charts, Content Items, POIs, Facilities and Notifications. The dynamic content update is one of the most essential functions and the reason is that gives the ability to manage all the content of the mobile application with simplicity.

Conclusions and future work

The paper describes the design, development and maintenance of *RefConnect*, a mobile application for asylum seekers and especially those with a refugee profile. *RefConnect* implements a social network for refugees and immigrants, assisting the exchange of information, experiences, volunteer offerings and other features. The application is a complementary to the Greek Asylum Service Application, developed by the same research team, Study in Greece, presented in TMC 2017 and it supported by the Embassy of the Kingdom of Netherlands in Athens.

Numerous extensions can be considered for the proposed project. Among them are:

- The geographic extension of *RefConnect* to other countries, covering potentially Europe in the whole
- Operation as a distance learning center, including the learning of the Greek or other language, as well as online lessons on various topics.
- Hosting multimedia- based information about the Greek and the European culture, the values and the philosophy of the “western civilization”. Moreover, it can host Greek and other language learning lessons.

References

- Behrakis, Y. (2015). The most crucial item that migrants and refugees carry is a smartphone. 16 January 2018, from <https://qz.com/500062/the-most-crucial-item-that-migrants-and-refugees-carry-is-a-smartphone/>
- ICT4Refugees. (2016). A report on the emerging landscape of digital responses to the refugee crisis. from <http://www.betterplace-lab.org/wp-content/uploads/ICT4Refugees-Report.pdf>
- Koons, S. (2015). IST researchers explore technology use in Syrian refugee camp. from <http://news.psu.edu/story/350156/2015/03/26/research/ist-researchers-explore-technology-use-syrian-refugee-camp>
- Makris, A., Petraki, E., Dimitropoulos, X., Liberopoulou, S., Tserpes, K., & Michalakelis, C. (2017). *Mobile Application for asylum seekers*. Paper presented at the The Migration Conference 2017, Athens, Greece.

World Bank. (2016). ICT and the Education of Refugees : A Stocktaking of Innovative Approaches in the MENA Region (Working Paper). from <https://openknowledge.worldbank.org/handle/10986/25172>

British Columbia Institute of Technology. (2016). CodeIgniter Web Framework. Retrieved from <https://codeigniter.com/>

Drifty Co. (2016). Build Amazing Native Apps and Progressive Web Apps with Ionic Framework and Angular. Retrieved from <https://ionicframework.com/>

Eurostat. (2016). *European Union: Asylum in the EU Member States* (Vol. 46). Retrieved from <http://ec.europa.eu/eurostat/documents/2995521/7921609/3-16032017-BP-EN.pdf/e5fa98bb-5d9d-4297-9168-d07c67d1c9e1>

Microsoft. Xamarin— Xamarin: Mobile App Development & App Creation Software. Retrieved from <https://xamarin.com/>

JavaScript. (n.d.). Retrieved from <https://www.javascript.com/>

jQuery Learning Center. (n.d.). Retrieved from <https://learn.jquery.com/ajax/>

Spring Framework : Retrieved from <https://projects.spring.io/spring-framework/>