HiTou

PROJECT BY:

ABDULLAH AL NADY

FARAH EL TAHAWY

Under supervision of:
PROF. NABIL LASHIN
ENG. MAHMOUD EL MAHDI

FINAL YEAR GRADUATION PROJECT

This document outlines the contents of Graduation Project (GP) handbook, which is intended to be used by students and faculty members in the college of Computer and Information Systems of Zagazig University, Ash Sharqiyah, Egypt. It provides a framework for use in undergraduate computer science, computer engineering and information system project.

Faculty of Computer & informatics, Zagazig University

Ash Sharqiyah, Egypt

2012-2013

Participating students:

Abdullah Al Sayed Al Nady.

Farah Mahmoud Saleh El Tahawy.

Under the Supervision of:

Prof. Dr. Nabil Lasheen

Eng. Mahmoud Al Mahdy

TABLE OF CONTENTS

Glossary:

GP: Graduation Project.

CS: Computer Science department

IT: Information Technology

IS: Information Systems department

Supervision Committee: Committee responsible for overseeing the GP development and   maintaining   this handbook. It should include CS, IT, and IS faculty members.

Supervisor: A fulltime faculty member in the College of Computer and Informatics responsible for the supervision of a group of GP.

Student: A student registered for GP in Computer Science/ Information Technology department at Zagazig University, Egypt.

Group/Team: A group of students formed as a team to work on the GP.

CHAPTER 1: Introduction

What is HiTou?

HiTou is a Windows Phone Application that acts as a companion for the tourist that helps him to discover, know, hang out, and go in tours in Egypt in an interactive, responsive, and different way.

How to use?

- It is a mobile Application that utilizes the features of Windows Phone, and Windows Azure features.

- The user logs-in the Application using his Facebook account.

- **First page** after logging in is the user profile where he can find his information, credit, and residence check-in for activating the "I'm lost feature".

- **The second panorama** item represents the outings provided by HiTou.

- In the outing page the user will find a 3 pivot items; **first one** is an overview about the outing, its places, and contact information for the places.
- **Second item** is the map and how to go where the user finds the location of each place in a push pin in the map, and the option to check-in there if he reached the place, and the option of getting the directions to the place.
- **Third item** is the reviews page where the user can post and read reviews about the outing that is hosted in our Azure host.

- Once the user start a quest, HiTou will award him with a discount in one of the restaurant that we're dealing with.

- If the user checked in the right place on the quest, the user will get bonus and be motivated to go for the next destination, which is another near, and interesting touristic place in Egypt. If the user completed a full track he'll get 15 points for the track.

- **The third panorama** item contains the fantastic features:
    1. Capturing a memory: use the camera to take a photo or pick a photo from the picture library and write on it a memory in Egypt in a good-looking way.
    2. Scan a poster: use the camera to scan the title on a poster and HiTou will provide a list of all videos related to this poster.
    3. Call a cab: Click to call the yellow cab of Cairo.
    4. Customs in Egypt: Read and know more about the Egyptian customs to know what is strange in Egypt and what is not to avoid culture conflicts.

CHAPTER 2: Background
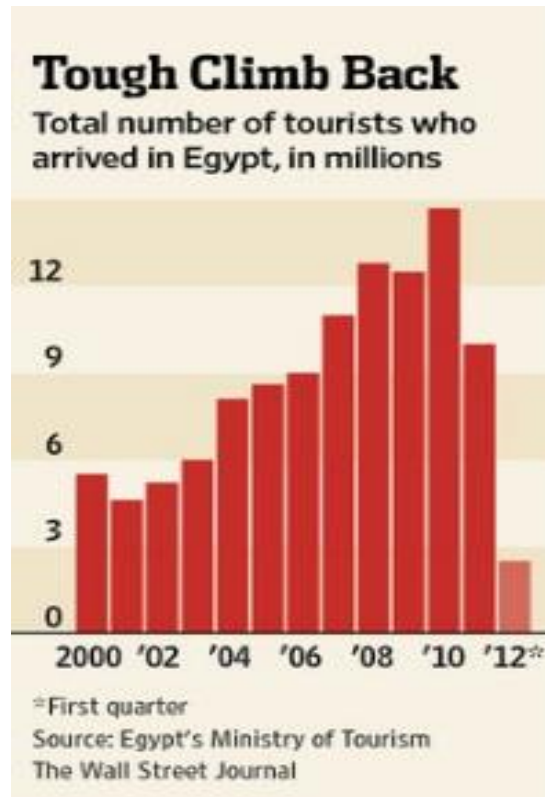
2.1: Problem:

Introduction:

In this document, we describe the current situation of Tourism in Egypt, stating some facts and estimated statistics we found in our research and surveys. We defined some main causes that stand as obstacles facing the target of achieving high national outcome from Tourism. We will introduce our solution that will promote the Tourism motion in Egypt and solving some of obstacles briefed in the problem definition.

Problem Definition:

Tourism is one of the most important sectors in Egypt's economy. More than 12.8 million tourists visited Egypt in 2008, providing revenues of nearly $11 billion. The sector employs about 12% of Egypt's workforce.

In 2000, there were about 5.5 million foreign tourist arrivals.

Now, after the revolution, Egypt struggles to win back tourists. As Egypt begins its long and difficult transition to democracy, it is also faced with the challenge of rebuilding its economy. Tourism revenues, a vital resource for millions of Egyptians, have fallen by 30 percent.

Tough Climb Back

Total number of tourists who arrived in Egypt, in millions

*First quarter
Source: Egypt's Ministry of Tourism
The Wall Street Journal

"Demonstrations in Cairo are one of the main challenges we're facing because when the media transmit this type of image, it reflects negatively on efforts to promote Egypt as a destination," Mr. Zazou says, Egypt's deputy minister of tourism

2.2: Solution:

Proposed Solution:

- **How do we plan to solve it**
  We did some research and we reached a conclusion that in order to solve this problem we would need to develop a solution that helpstourists to find a new, modern, trusted, and exciting way to discover Egypt.

- **Brief description of the project**
  We decided to develop HiTou Application that acts as acompanion for the tourist that helps him to discover, know, hang out, go in tours in Egypt in an interactive, responsive, and different way.

- **Generally how it works**
  - It is a mobile Application that utilizes the features of Windows Phone, and Windows Azure features.
  - The user creates an account, and then signs-in the Application that provides him many different quests to accomplish in Egypt.
  - The quest is a track on the Map that contains destinations where the users should check-in.
  - Every destination demonstrates a featured Touristic place in Egypt.
  - Once the user start a quest, HiTou will provide him a navigation track from his location to the destinations on the map, all information about these places, and all possible ways to reach there
  - If the user checked in the right place on the quest, the user will get bonus and be motivated to go for the next destination, which is another near, and interesting touristic place in Egypt.
  - The App will provide Badges for the most active tourists. It will also provide a cool way to document the visits using the media features such as the Camera of the Windows phone.
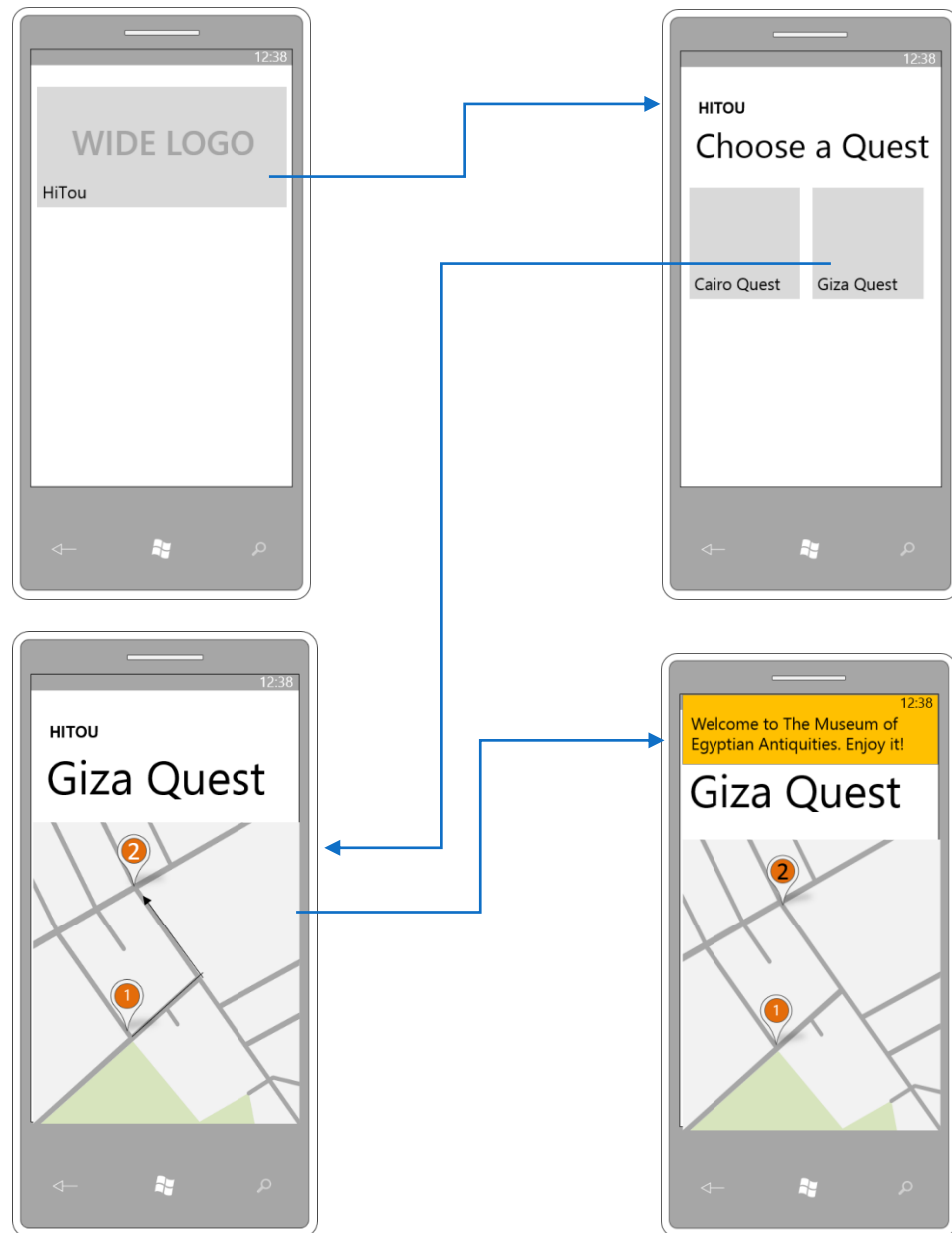
- **Who will benefit:**
  - Tourists: a companion the helps them to reach, discover, know Egypt in interactive and adventure-safe style.
  - Ministry of Tourism in Egypt: a new way to attract tourists.

CHAPTER 3: Propose System

3.1: The Windows Phone App Storyboarding:

3.2: Technologies, Tools Used and System Architecture:

- ## Technologies:

    - o Visual C#
    - o XAML
    - o Bing Maps
    - o Silverlight
    - o Windows Phone
    - o Windows Azure
    - o ASP.Net'
    - o Windows 8

- ## Tools used:

    - o Visual Studio 2012
    - o Windows Phone SDK
    - o Bing Maps SDK
    - o Blend for Visual Studio 2012
    - o Windows Azure SDK

System Architecture:

Tourist
Window Phone App
Cloud Service

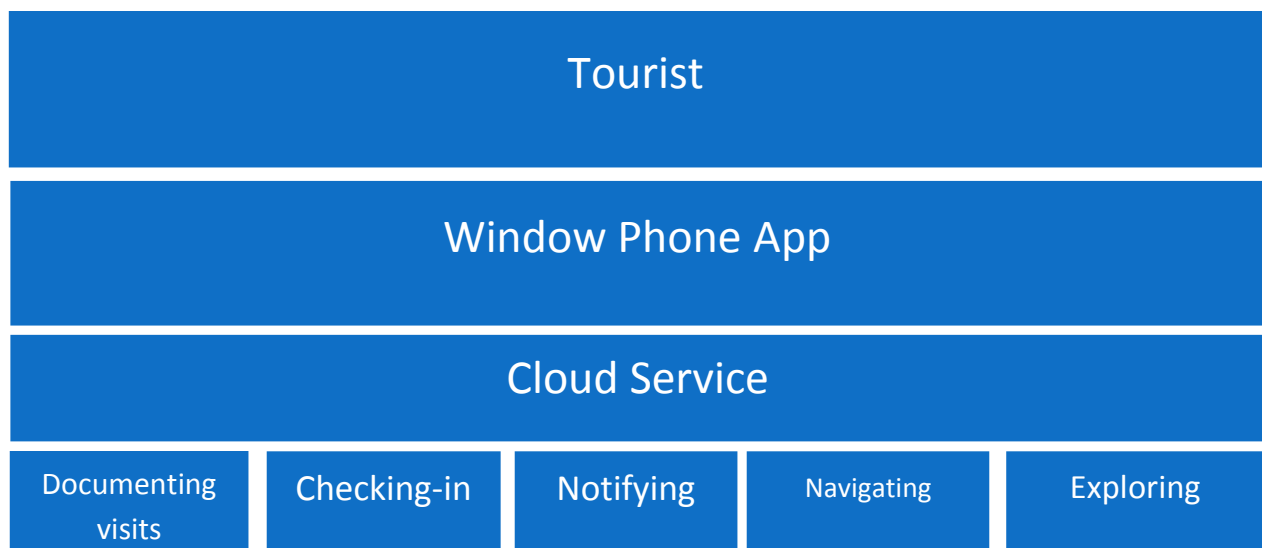| Documenting visits	Checking-in	Notifying	Navigating	Exploring

Figure (3.1): HiTou System Architecture

CHAPTER 4:

Tracks:

The problem started when we found that most of tourists if not all who visit Egypt, came to three or four places in Cairo, The pyramids, Egyptian museum and Cairo tower.

Egypt isn't three or four places.

So we decided introduce real Egypt to tourists, the tracks we picked include places tourist doesn't know about it, even some of us don't know that these places are in Egypt

We all know about the critical circumstances that tourism faced in the last couple of years, tourism took a big hit after revolution.

So we came up with Hitou, we believe that it'll help in attracting the tourists back to Egypt.

HiTou is an E-tour guide it help tourists to find places that they can visit when they come to Egypt, by giving them tracks to follow.

Tracks choosing Criteria

These tracks shed the light on the unknown historical places in Egypt, we have too many places that isn't known for tourists.

We'll help them to discover these places Instead of what happens in a regular tour.

Examples for unfamiliar places:

Let's take a track from our App as an example:

1- Downtown track

There is a place in downtown Cairo called **"Egyptian Center for Culture & Art (Makan)"**

This place aims to record and present traditional music and musicians in Egypt and to share this rich resource with the world community.

"Makan" host lots of bands like Mazaher bands and Arab Jazz bands and some Singers from Morocco, Tunisia, and Iraq.

Another example:

2- Coptic Cairo

Is **Coptic Cairo** none of us know anything about it, or even know that the holly family visited this area and stayed at the site of Saints Sergius and Bacchus Church (Abu Serga).

Tourist can easily get in there by taking the subway (costs 1 Egyptian pound) from Downtown to MerGirgis station and you'll find yourself outside MarGirgis Church.

We also picked some unfamiliar restaurant for tourist to try, restaurant which serve local Egyptian food

We are aiming to let tourists discover the real taste of Egypt.

Chapter 5:

Future & Conclusion

5.1: Impact:

- Egypt after revolution lost with 33% of the income which tourism provided and also with touristic services, to become the 85 country instead of 58 before the revolution among 140 country.

- Over 4 Millions, this is the number of people working in tourism about 60% of them their income is down with 50% or more based on ministry of tourism statistics.

- Self-Directed tourists rarely come to Egypt, this particular part of tourists would like to have good places to visit with the least money to spend, they can spend 10 day in France only with 800 – 1000 Dollars and in Egypt tourist spend 1500$ in only one week.

- We believe this application will end the idea about the more money you pay the good service you get, simply you can get a friendly tour guide without paying.

CHAPTER 6: Technical Information

Requirements:

Hardware Requirements:

- Camera.
- Internet connected device.

Software requirements:

- Windows Phone 7.5 or later.

Platforms Used:

Windows Phone:

Windows Phone is a Mobile Operating System created by Microsoft and now the 3rd Operating System in terms of number of users, it facilitate a lot of operations for users with an apps marketplace with more than 140 million apps it's a stable platform for developers, with compatibility with C#, XAML, HTML5 and rising number of users moving to it.

For HiTou Windows Phone acts as the medium with witch user can do all the interactions with the project, providing mobility and internet access everywhere, and that's what a tourist need to guide him everywhere.

Windows Azure:

Windows Azure is the cloud platform and infrastructure provided by Microsoft, with the name of Microsoft it had the stability and number of tools that we wanted to achieve a stable internet service for the user.

For HiTou, Windows Azure acts as our backend and internet storage to provide to store all the information that a user might want to access everywhere, and the information that users might share with each other over the internet as well (e.g. User Reviews).

Facebook apps:

Facebook is the most used Social Network, with more than a billion users the probability that an internet user has an account at Facebook was high enough for us to use it as OAuth Service which is a universal way for logging in.

We used Facebook for user to log in and share achievements and memories and for us to grab his information without the need to write all of it, user just have to log in using his own Facebook account once and use the application with his identity for the rest of the time.

Technologies Used:
.Net Framework 4.0:

.Net Framework is the one framework that is used among all Microsoft Services we used, it provided us a huge number of libraries to use to implement our UI and UI behavior, and to achieve some certain process, the .Net Framework as one framework for all services facilitated our communication happening between

Windows Phone as a frontend and Windows Azure as a backend, as well as the Facebook SDK that is built on .Net Framework using .Net Framework.

Project Hawaii:

Project Hawaii provides number of cloud services for developers that could be used to create cloud-enhanced mobile applications, though we used one specific service and it is the Optical Character Recognition (OCR) Service, This service takes a photographic image that contains some text and returns the text. For example, given a JPEG image of a road sign, the service would return the text of the sign.

Languages:

XAML:

XAML stands for Extensible Application Markup Language, and it is a declarative XML-Based Language created by Microsoft and is used for initializing structured values and objects.

It is used with Windows 8, Silverlight, Windows Phone and WPF applications, we used it specifically for the Windows Phone interface.

XAML provided us with a large number of user interface elements that is used among all Windows Phone application, though we could create custom user interface elements we maintained the original elements to leverage the native windows phone feel and look.

C#:

C# is the most used programming language with .Net Framework, It's an Object Oriented programming language and it's simple, modern and general purpose language.

It's the main language for Windows Phone Development we picked it as it is a feature rich language, we used it in implementing everything inside our Windows Phone Application starting from user interaction with the application and user interface manipulating ending to the internet communication and internal programming logic.

HTML:

HTML stands for Hypertext Markup Language, like XAML, it is a XML-Based Language and it's the main markup language for creating web pages and other information that can be displayed within a web browser.

For HiTou, We used HTML to create the review pages that is viewable in our mobile application as well as the web, The HTML is manipulated first on the web and then rendered within our mobile application using an embedded web browser.

JavaScript:

JavaScript, abbreviated as JS, is an interpreted programming language and the main language for creating client-side web applications.

For HiTou, JavaScript was our means for communicating the Facebook API that eased the process of adding reviews with user's Facebook account while making it available online for web browsing.

Implementation:
Design Tools:

Blend for Visual Studio:

It's a user interface designing tool created by Microsoft to facilitate creating user interface elements and behaviors, we used it to create some custom user interface element designs and interactions.

Adobe Photoshop:

It's a photo editing program created by Adobe, It's the most used photo editing program with raster graphics, and we used it to edit, manipulate and export some photos to be used with our application.

Adobe Illustrator:

It's a vector graphics focused program created by Adobe, We used it to create our logo and some icons that we used in our user interface elements.

Design Concept:

User Experience:

We built User Experience to have with some principles in mind:

Ease of use:

So that an average Windows Phone user can use it with ease.

Minimalism:

It was created with minimalism in mind, so minimal number of steps to perform an action, to do that we created a main dashboard at main page that can let you perform any action directly within main page.

Windows Phone Native Feel:

Windows Phone is an OS that have some unique UX design guidelines HiTou is one application that follow these guidelines.

User Interface:

Colors:

Colors were chosen to be cheerful and peaceful to go with the total application purpose that is calling tourists to visit Egypt.

Design Elements:

Logos, icons and typefaces were chosen to reflect the Egyptian culture: ancient, and modern.

Design Implementation:

Most of the user interface elements and interactions were programmed using XAML and C# while some others were designed using HTML and imported into the mobile application using an embedded web browser.

For example:

Our main page and dashboard: it is a panorama page within each panorama item there exist a lot of native user interface elements that are customized to fit in our design concepts keeping the native look and feel of the Windows Phone, while some interactions and elements are not brought by default with the Windows Phone Platform so we had to program it manually, some were implemented using C# and some others with custom XAML templates and storyboards.

Maps: we had to write a lot of C# to manipulate the map and add check points, current place and paths.

Navigation: navigation inside the application required a lot of work to achieve it, starting from the first page and logging in to Facebook without requiring it to be shown every time the application launches ending to minimizing the number of clicks and navigations to achieve some certain process like doing the OCR work within only one page without any need to navigate away.

Development Tools:

Visual Studio:

It is the main IDE of Microsoft Technologies created by Microsoft. It's a heavy equipped IDE, we used it with Windows Phone SDK and Emulator to write most of our code.

Microsoft WebMatrix:

It a light weight text editor that is mainly used for web technologies and Windows Azure, it facilitates the connection with Windows Azure. We used it to create and edit our web content like review pages and landing page.

Development:

We created this application over two platforms; Windows Azure and Windows Phone, Mainly Windows Phone.

On Windows Azure we used HTML and JavaScript to communicate Facebook to add, edit and delete reviews, we didn't do too much with that using a readymade plugin from Facebook, embedding it into web pages and then embedding them to our application.

On Windows Phone we used it as an interface for the user, providing users means to interact with maps, view and review tracks, share states, interact and deal with credits.

Interacting with maps happened through the use of Bing maps API, It's a REST full API that provided us with what is needed for the maps, and we used IsolatedStorageClass that is an API to interact with Application's Isolated Storage in Windows Phone to store our user specific data, such as check-ins and credits.

View and Review tracks created through an online web page that is embedded using web browser element in XAML and manipulated using C# to view track-specific reviews.

Sharing over Facebook and grabbing and using user information is all achieved using Facebook SDK for .NET.
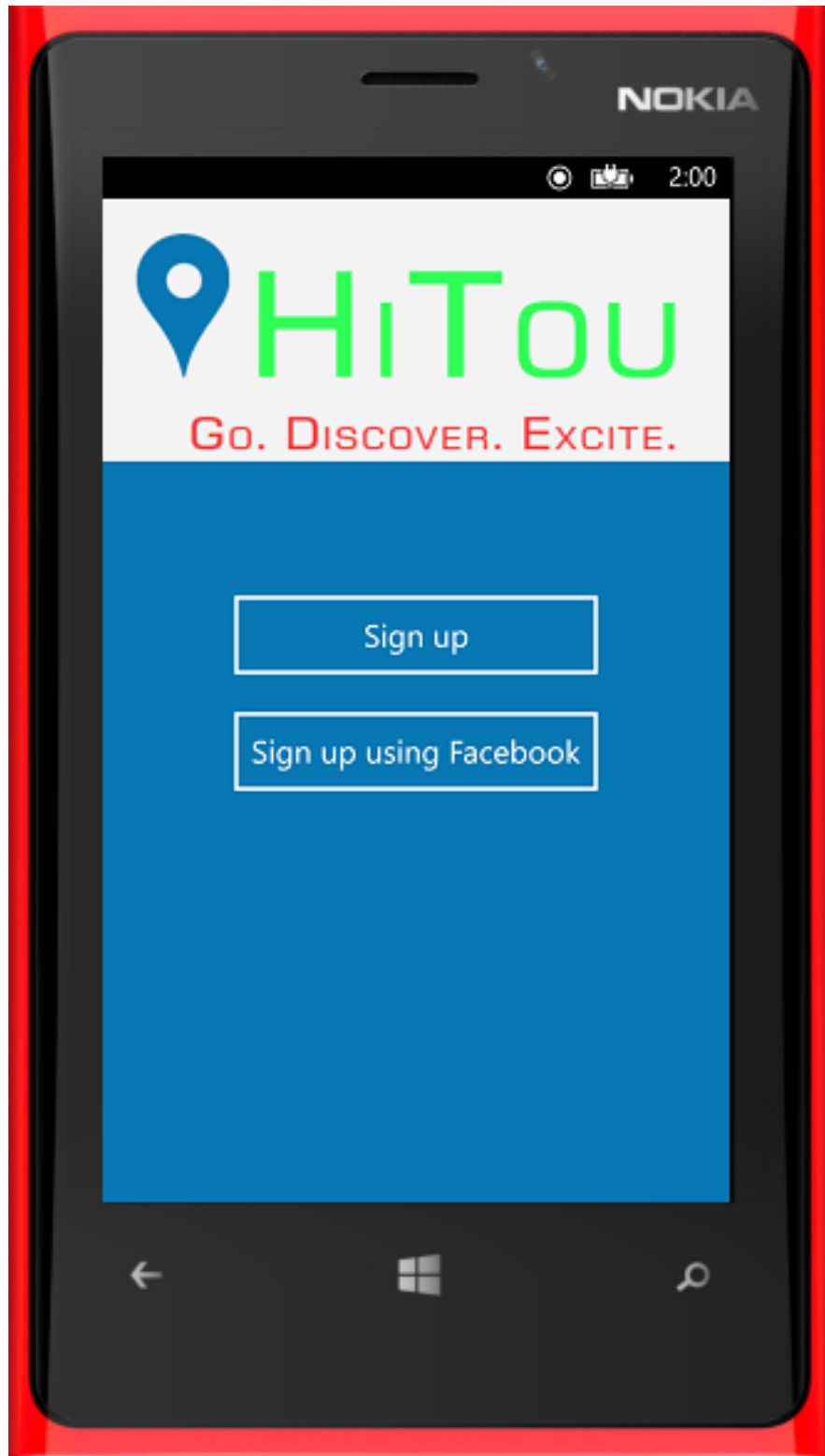
Dealing with credits happens inside the application using IsolatedStorage Class discussed above.

The OCR part were created using Project Hawaii and grabbing videos happened using a web browser element manipulated by C# to grab specific results.

CHAPTER 7: Screenshots

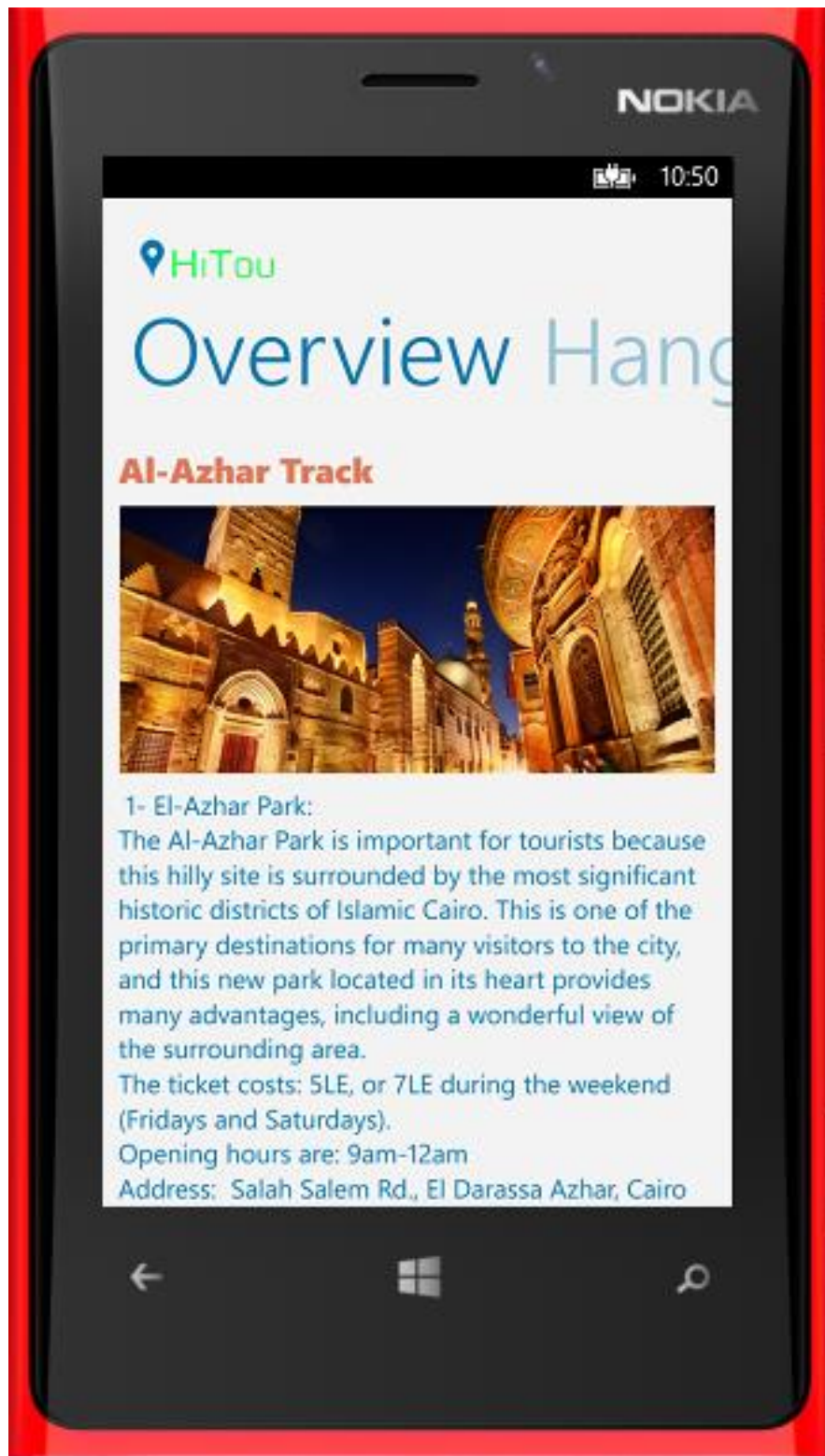*The tile of HiTou in the Windows Phone Start Screen*

The Sign up page of HiTou

The user profile view of the user

The "Go" view containing the available tracks
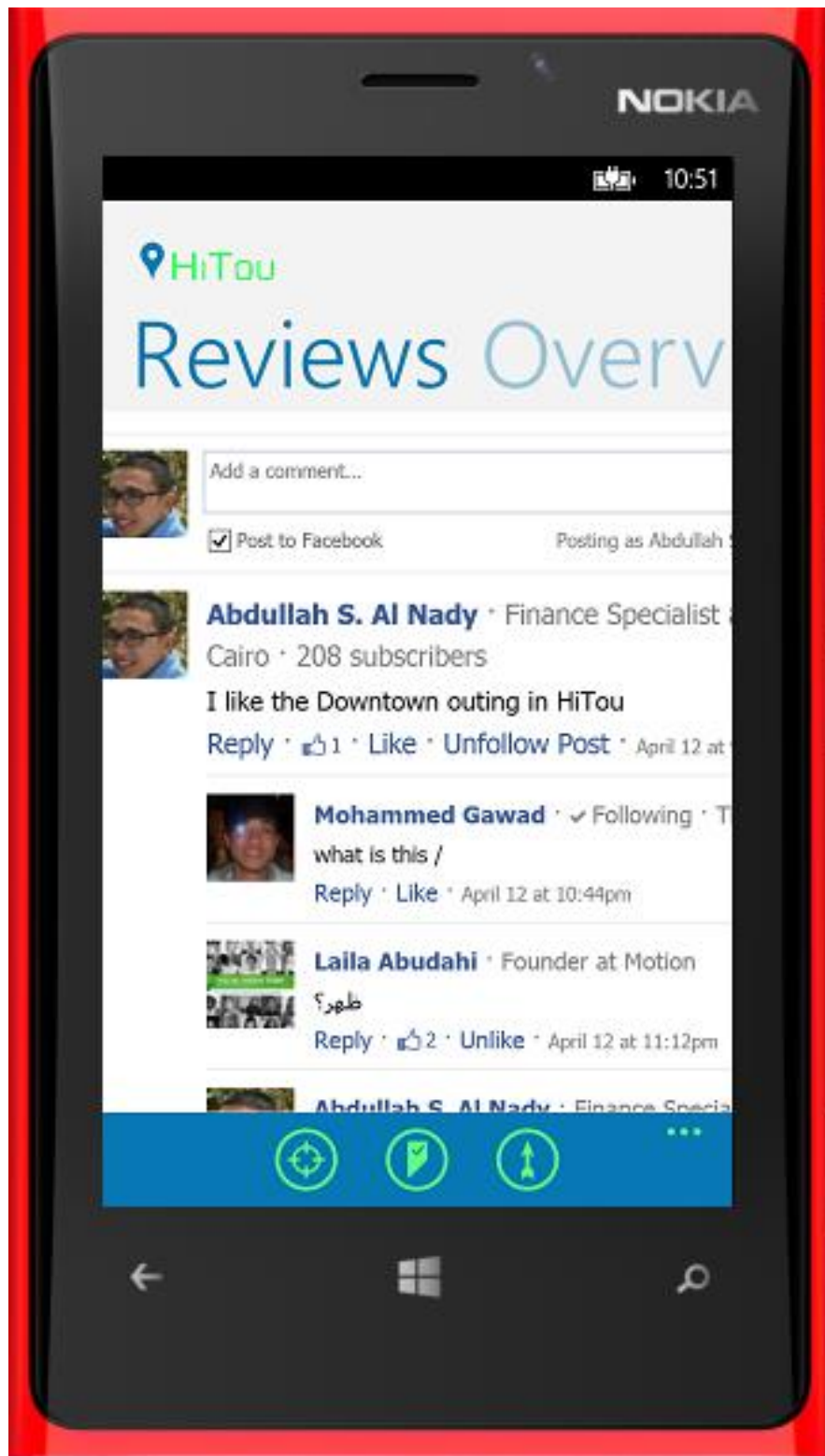
The "DISCOVER" view full of interactive, and responsive feature

The Track Page (1): the Overview

The Track Page (2): the Hang Out

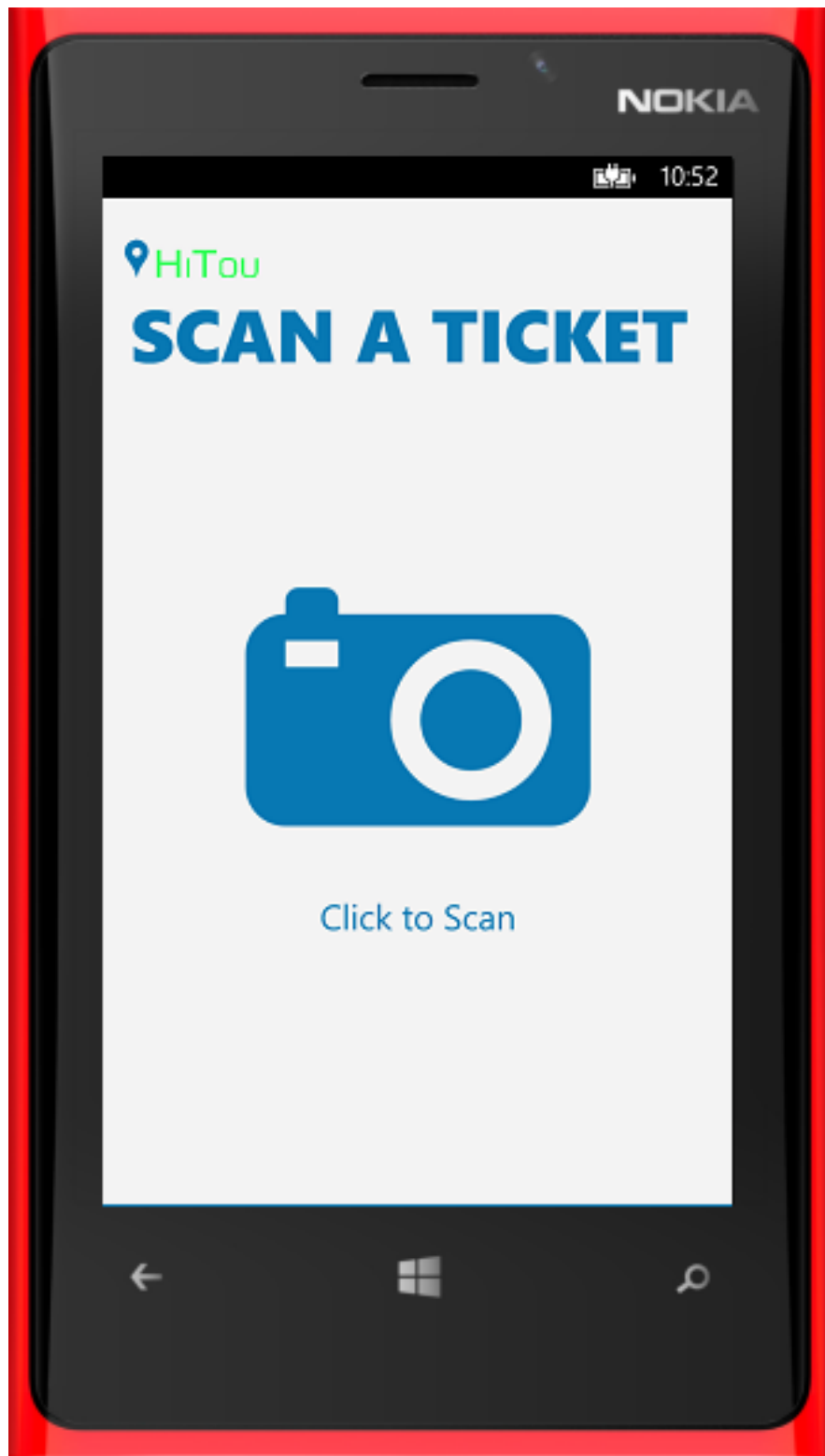*The Track Page (3): the Reviews*

The Tracks list

Scan a Ticket Feature using the Phone Camera

The Customs in Egypt Page