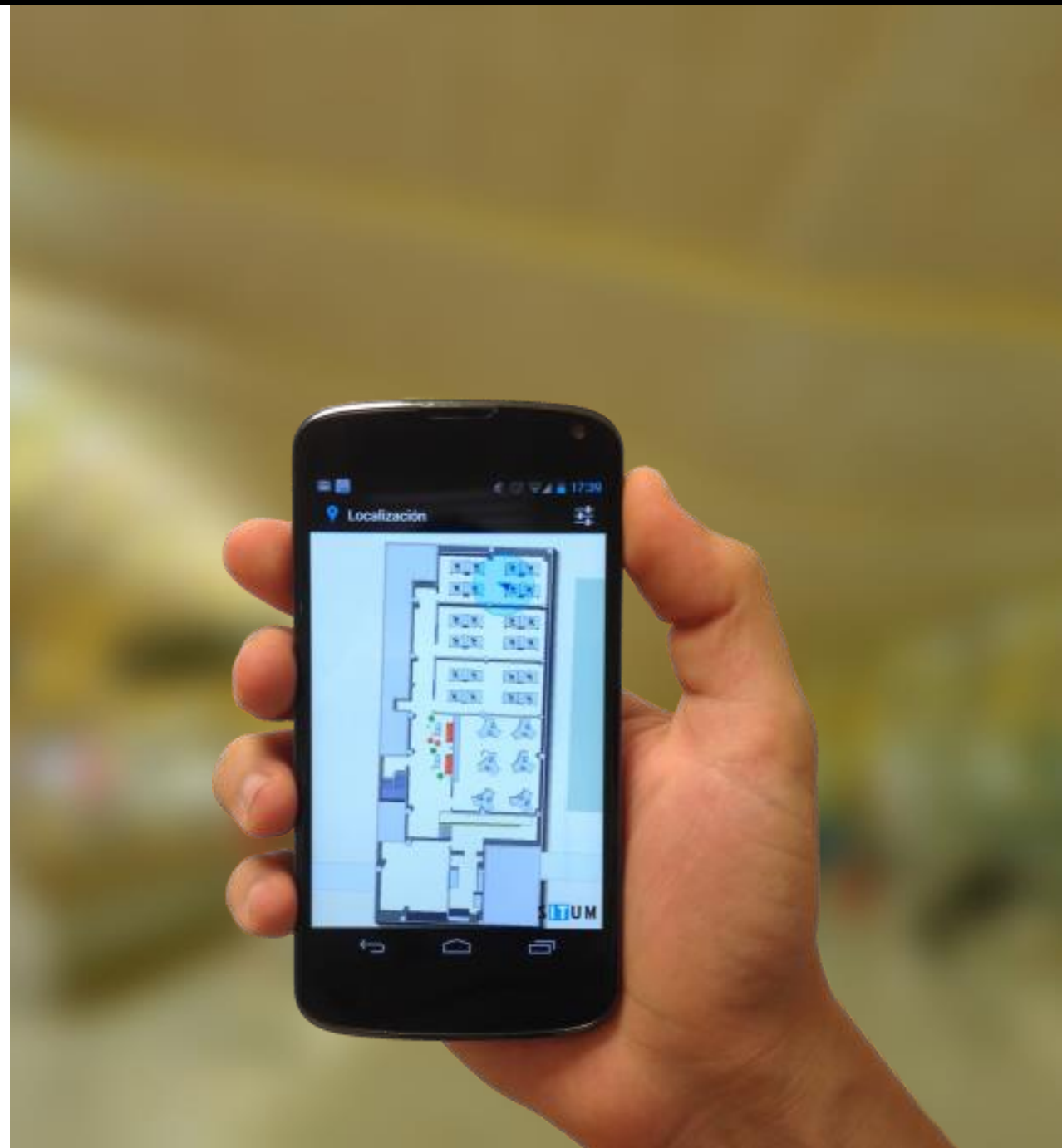
situm
INDOOR POSITIONING

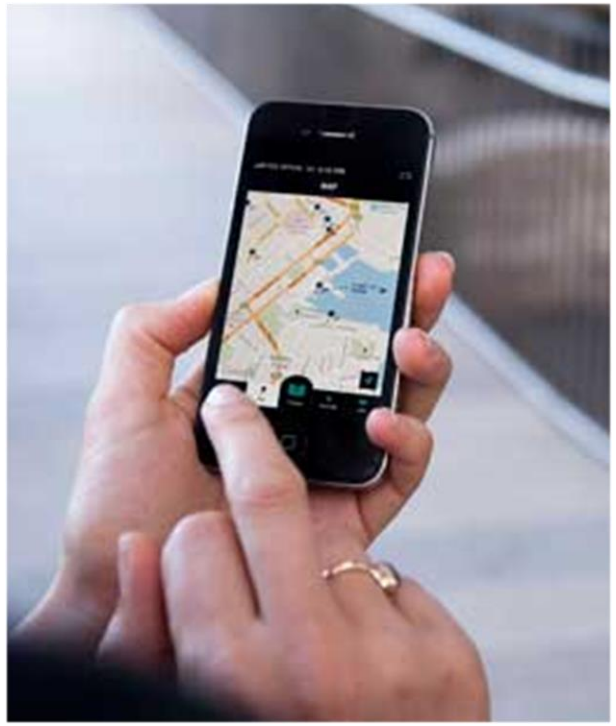
The “GPS” for indoors

www.situm.es



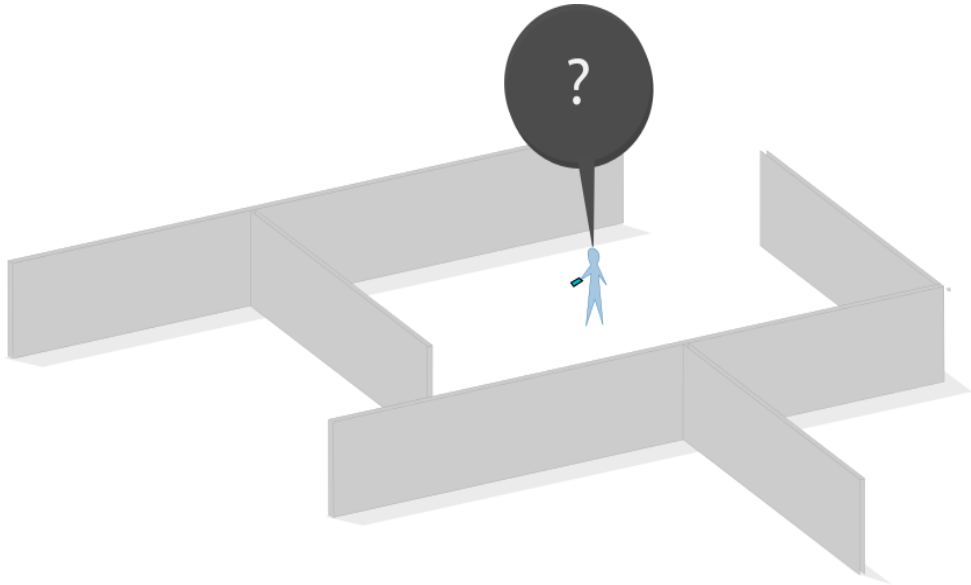
THE PROBLEM: Where am I?

OUTDOORS: GPS, Google Maps, etc.



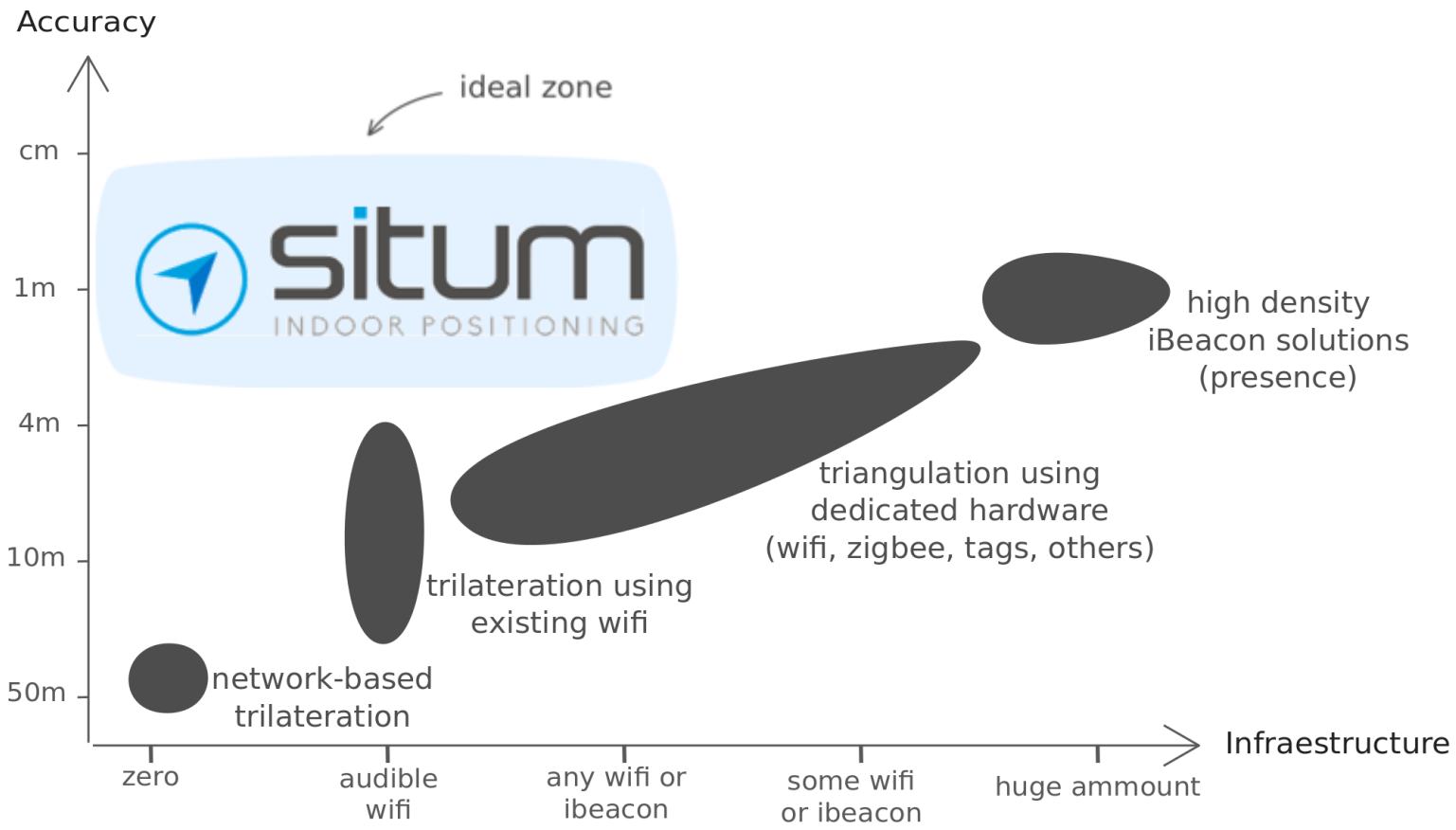
INDOORS: ?

- We spend >90% of our time indoors
- Location Based Services (LBS) are limited to outodoors



CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

THE SOLUTION: **Indoor localization**

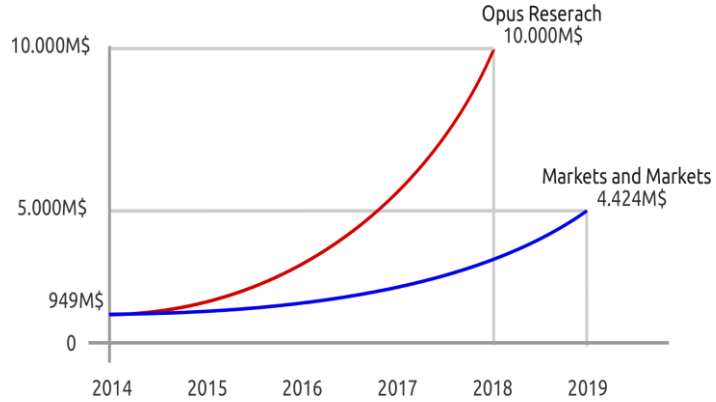


CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

THE MARKET: **THE NEXT BIG THING**

Indoor location market: **Huge Potential**

- *"The market is estimated to skyrocket from $597 million to $**3.96 billion**, at a CAGR of **46 % from 2014 to 2019"**. Research and Markets*
- *"The market will grow from an estimated $935.05 million in 2014 to $**4.42 billion** by **2019**, at an estimated CAGR of **36.5 %"** . Markets and Markets*
- Most detailed analysis predict around $**10 billion** in spending *"to be touched or directly affected by indoor location by **2018"**. Opus Research*



Capital entering the market: **Start-ups** movements

- **WiFiSLAM** acquired by **Apple** for $**20M.** Mar'13
- **Ruckus acquieres Yfind.** Jul'13
- **SK Telecom** acquires **Shopkick** for approximately **US$200 million.** Sep'14
- **Meridian** bought by **Aruba** and this one bought by **HP** at $**3Billion**. Mar'15
- **Indoor Atlas** funds from **Baidu** ($10M. Sep'14) and **SK Telekom**. $3M Jul'15
- **Acuity** acquires indoor-location specialist **ByteLight**. Apr'15
- **TCS** acquires Indoor Location Assets from **Loctronix**. Jul'15

*"In a few years, the combination of smartphones and offline location awareness could become nearly **as radical and disruptive as the Internet** itself has been"*
Opus Research

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

COMPETITORS: **Why Situm?**

High Precision/Zero Infrastructure/Auto-level detection Indoor Location technology working in **real world**

	Multi-sensor situm	**Others IPS based on inertial navigation and…**		**Others**	
		Wifi+BLE (indoo.rs)	**Wifi+ Magnetic (IndoorAtlas)**	**Wifi-only (Ekahau)**	**BLE-only (Shopkick)**
Accuracy	**0.5-3m**	1-4m	**0.5-3m**	3-8m	presence
Level detection	**Yes**	Many	No	Many	Many
Infrastructure	Little to **none**	Medium to many	**None**	Many to **none**	Many
% of venues	**>90%**	>80%	>50%	**>90%**	>80%

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

WHY SITUM: **Working in real world**

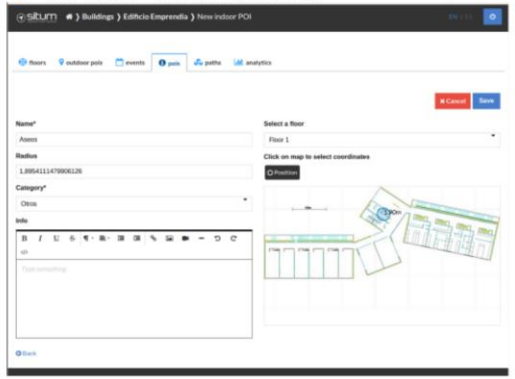
SERGAS (Health Service of Galicia, Spain): **22 Hospitals & Medical Centers**

- **Lucus Augusti University Hospital** (HULA). Lugo, Spain
  - One of the largest hospitals in Europe (**166.000 sqm**).
  - Full deployment **in 2.5 days** (mapping and beacon installation)
- **Consellería de Sanidade de Galicia** (Health Service Headquarters). Santiago de Compostela
  - 2nd Largest Building of Xunta de Galicia (Bigger than the neighbor Football pitch)
  - **+40.000 sqm**. Full deployment **in 1.5 days** (mapping and beacon installation)
- **Other 20 Medical Centers**

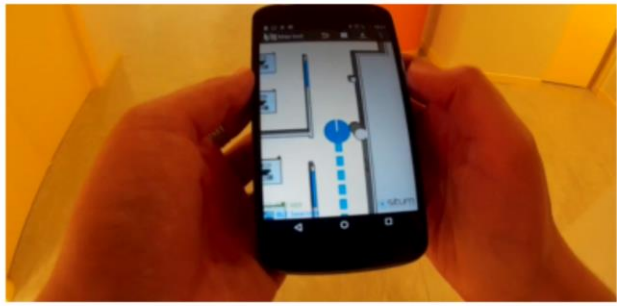
CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

THE PRODUCT: **How does it work?**

1 Create your own indoor maps at our dashboard

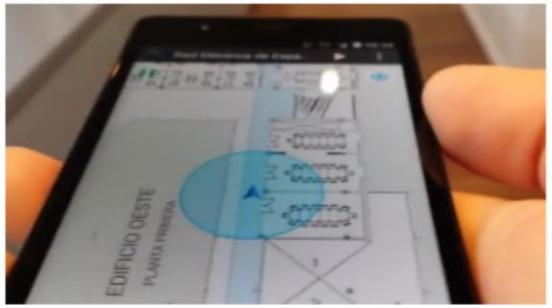


2 Map your venue by walking around with our Map Tool



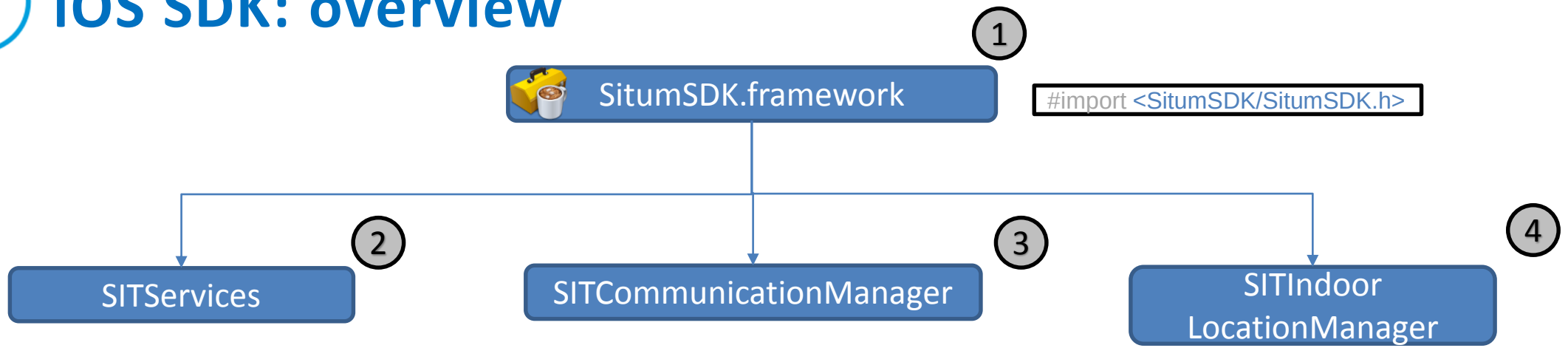
3 Locate yourself using our example app or integrate the positioning service into your own app

SitumSDK →



CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

iOS SDK: overview



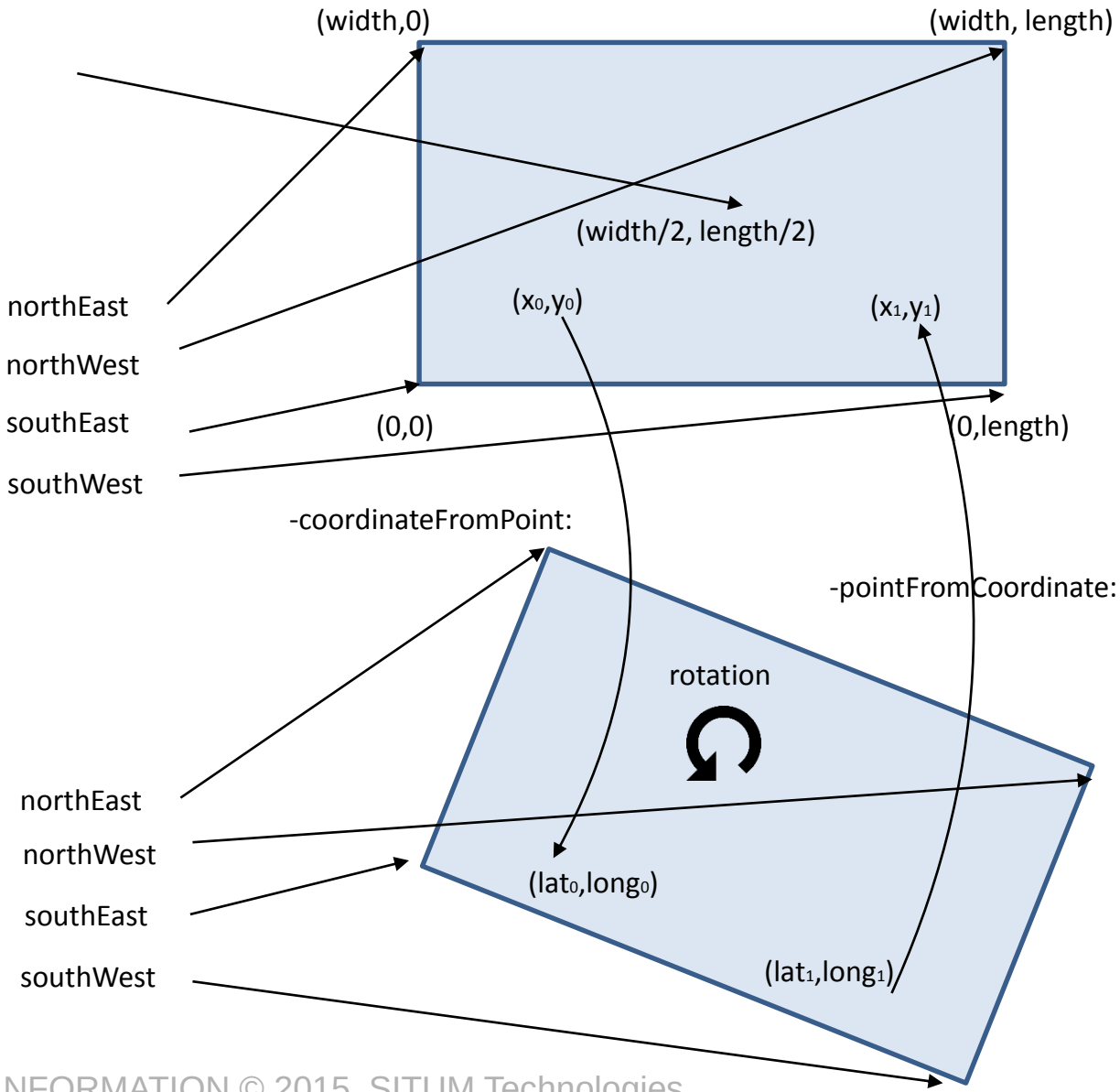
2	+provideAPIKey:forEmail:	Credentials
3	-fetchIndoorBuildingsWithCompletion:	Fetch buildings
	-fetchIndoorLevelsFromIndoorBuilding:withCompletion:	Get floors of building
	-fetchIndoorLevelMapFromIndoorLevel:withCompletion:	Get floor map
	-fetchPOIsFromIndoorBuilding:withCompletion:	Get POIs of building
	-fetchGraphFromIndoorBuilding:withCompletion:	Get navigation paths (graph) of building
4	-startReportingIndoorLocationForBuilding:toQueue:withHandler:	Start positioning
	-stopReportingIndoorLocation	Stop positioning

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

iOS SDK: buildings

SITIndoorBuilding

- -id
- -name
- -address
- -coordinate
- -width
- -length
- -bounds
- -rotation
- -boundsRotated
- -coordinateFromPoint:
- -pointFromCoordinate:
- -angleFromYaw:



CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

iOS SDK: levels

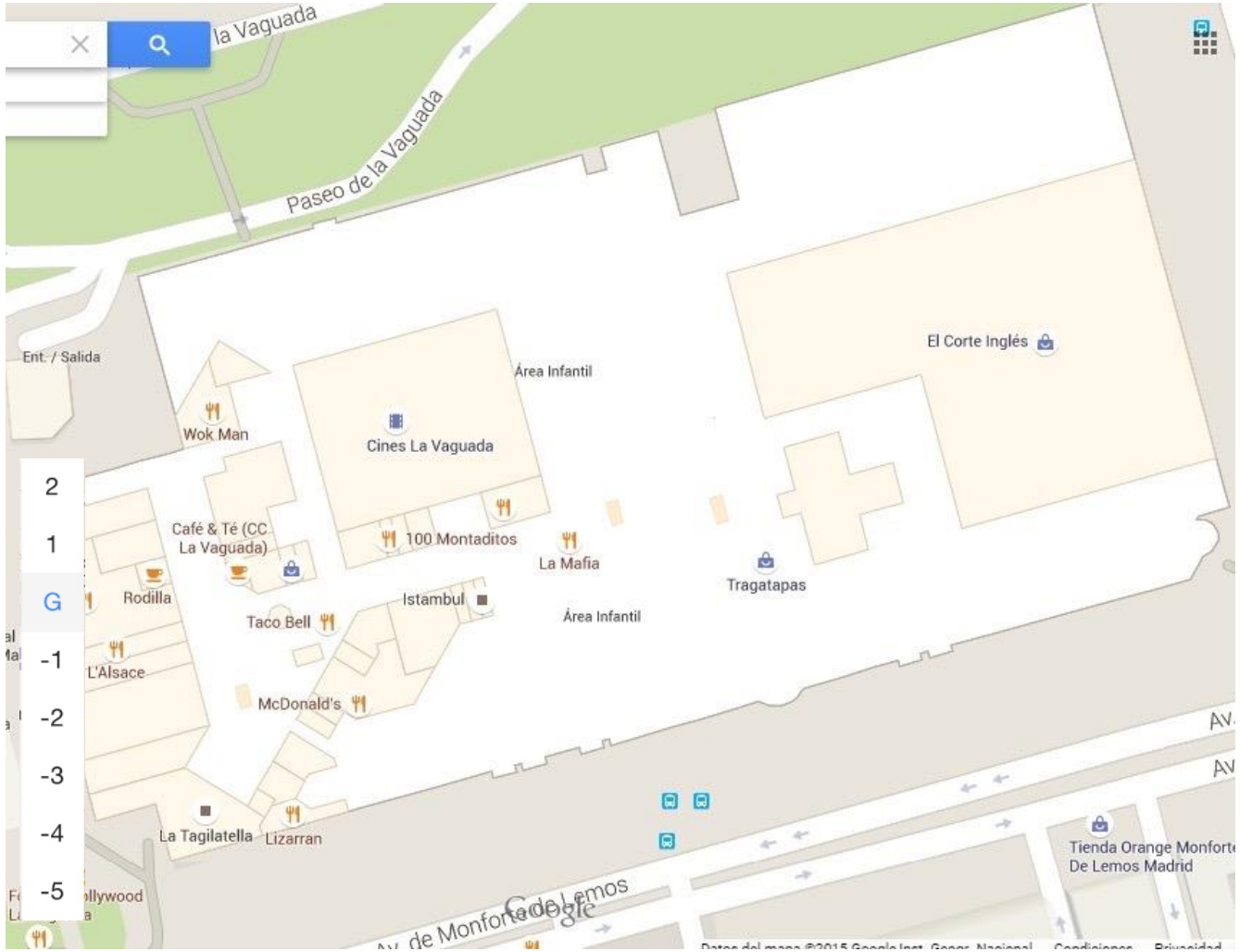
SITIndoorBuilding

SITIndoorLevel

-id

-buildingID

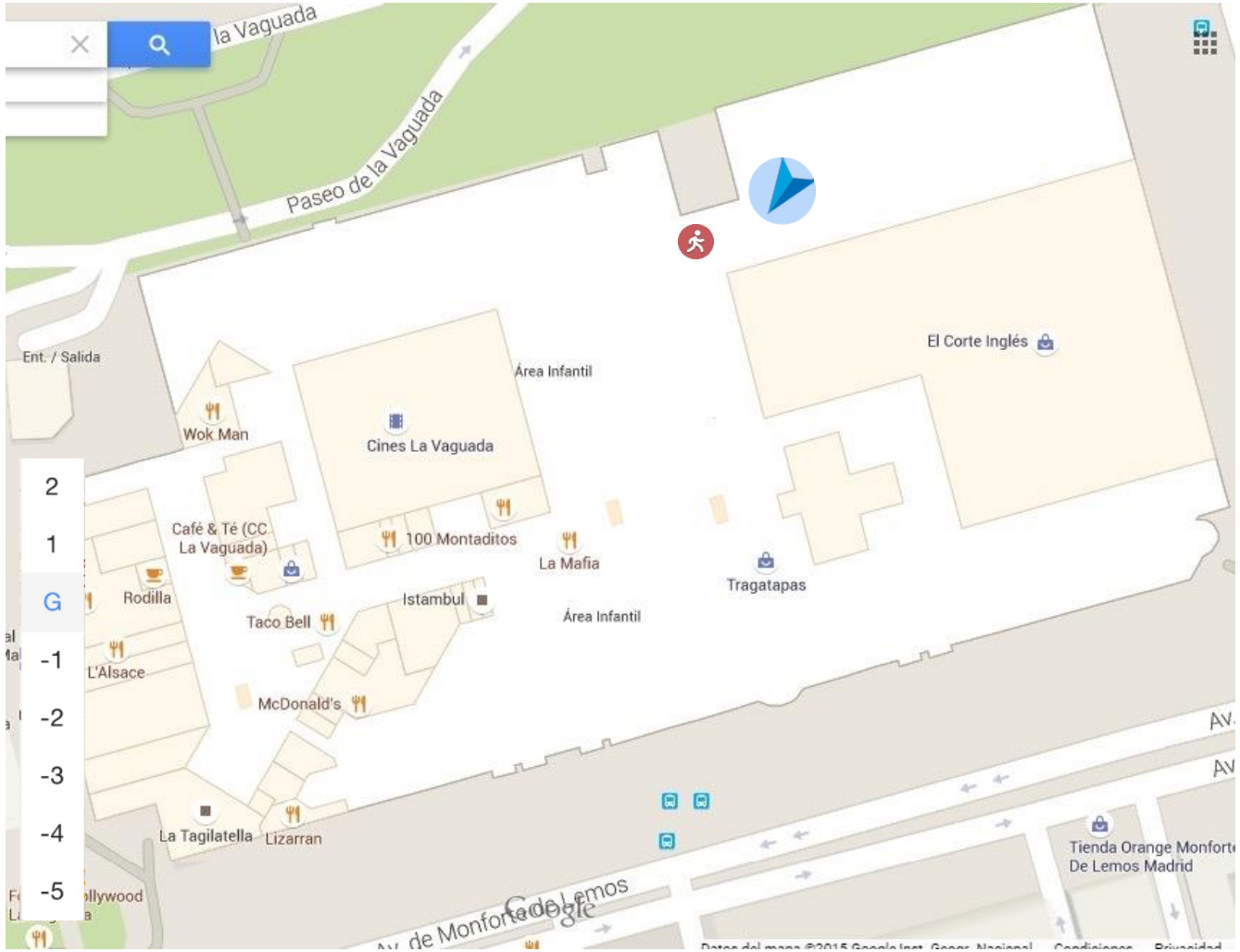
-level



CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

iOS SDK: Points Of Interest (POIs)

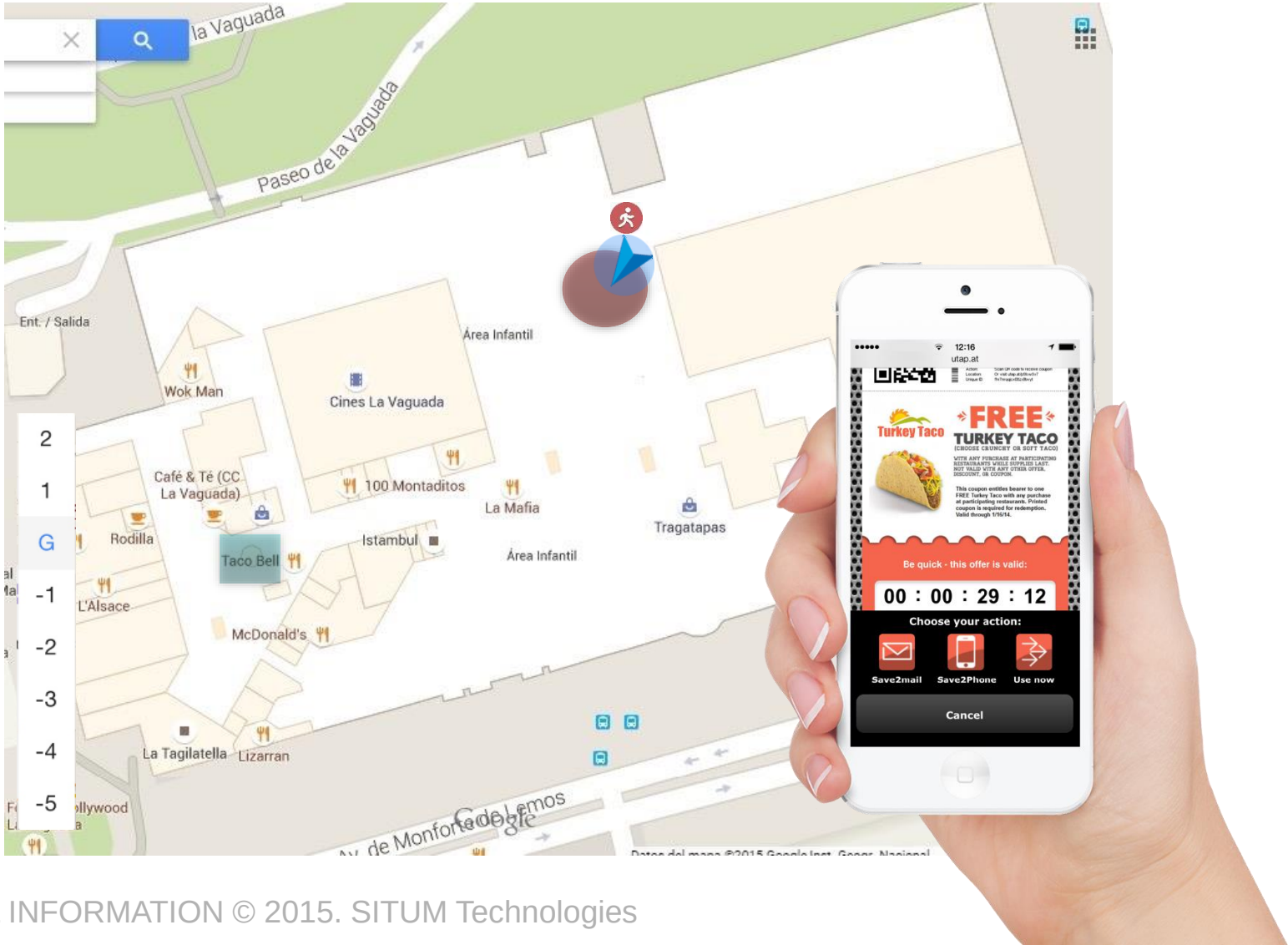
- SITIndoorBuilding
- SITIndoorLevel
- SITIndoorLocation
- SITPOI
  - -name
  - -info
  - -category
  - -indoorPoint (x,y,floor)
  - -radius



CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

iOS SDK: events

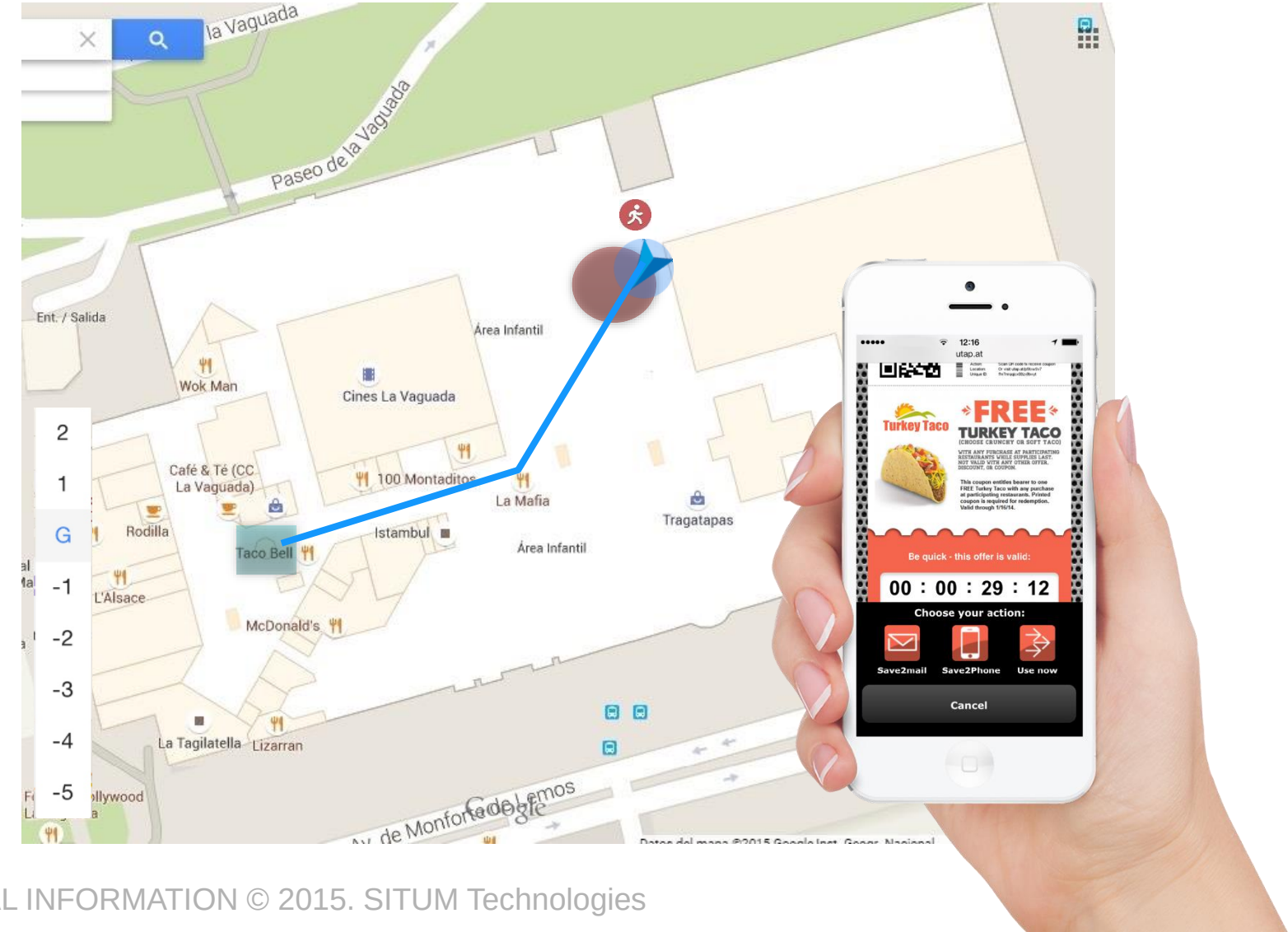
- SITIndoorBuilding
- SITIndoorLevel
- SITIndoorLocation
- SITPOI
- SITEvent
  - -id
  - -buildingID
  - -positionArea (x,y,floor,radius)
  - -conversionArea



CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

iOS SDK: routes

- SITIndoorBuilding
- SITIndoorLevel
- SITIndoorLocation
- SITPOI
- SITEvent
- SITGraph
- SITIndoorRoute
  - -steps



CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

iOS SDK: bonus!

- SITIndoorBuilding
- SITIndoorLevel
- SITIndoorLocation
- SITPOI
- SITEvent
- SITGraph
- SITIndoorRoute

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Android SDK: Starting off

- Add the dependency to build.graddle

```
compile files('libs/SitumSDK.jar')
```

- Add the service and permissions to *AndroidManifest.xml*

```
<service android:name="es.situm.sdk.v1.SitumService"/>
```

```
<uses-permission android:name="android.permission.INTERNET" />
<uses-permission android:name="android.permission.CHANGE_WIFI_STATE" />
<uses-permission android:name="android.permission.ACCESS_WIFI_STATE" />
<uses-permission android:name="android.permission.WAKE_LOCK" />
<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
```

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Android SDK: Authentication

```java
/**
 * Autenticacion mediante usuario y apikey
 */
situmDataManager = SitumLogin.login("user", "apikey");


/**
 * Autenticacion mediante usuario y contraseña
 */
SitumLogin.login("user", "pass", new SitumLoginResponseHandler() {
    @Override
    public void onLogin(SitumDataManager dataManager) {
        situmDataManager = dataManager;
    }

    @Override
    public void onWrongLogin() {
        // datos incorrectos
    }

    @Override
    public void onConnectionError() {
        // error de conexion
    }
});
```

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Android SDK: Buildings

```
/**
 * Descarga los edificios
 */
situmDataManager.fetchBuildings(new SitumResponseHandler() {
    @Override
    public void onListReceived(List buildings) {
        // se recibe la lista de edificios
    }

    @Override
    public void onErrorReceived(int statuscode, Header[] headers, byte[] bytes, Throwable throwable) {

    }
});
```

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Android SDK: Floors

```
/**
 * Descarga las plantas de un edificio
 */
situmDataManager.fetchLevelsForBuilding(building, new SitumResponseHandler() {
    @Override
    public void onListReceived(List data) {
        // se reciben las plantas del edificio seleccionado
    }

    @Override
    public void onErrorReceived(int statuscode, Header[] headers, byte[] bytes, Throwable throwable) {

    }
});
```

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Android SDK: Maps

```
/**
 * Se descarga la imagen del nivel seleccionado
 */
situmDataManager.fetchMapForLevel(level, new FileAsyncHttpResponseHandler(this) {
    @Override
    public void onFailure(int statusCode, Header[] headers, Throwable throwable, File file) {

    }

    @Override
    public void onSuccess(int statusCode, Header[] headers, File file) {
        // se recibe la imagen del nivel seleccionado.
        Bitmap mapa = BitmapFactory.decodeFile(file.getAbsolutePath());
    }
});
```

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Android SDK: Indoor POIs

```
/**
 * Se descargan todos los puntos de interes interiores del edicifio seleccionado
 */
situmDataManager.fetchIndoorPOIsForBuilding(building, new SitumResponseHandler() {
    @Override
    public void onListReceived(List data) {
        // se reciben los POIs interiores del edificio seleccionado
    }

    @Override
    public void onErrorReceived(int statuscode, Header[] headers, byte[] bytes, Throwable throwable) {

    }
});
```

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Android SDK: Outdoor POIs

```
/**
 * Se descargan todos los puntos de interes exteriores del edificio seleccionado
 */
situmDataManager.fetchOutdoorPOIsForBuilding(building, new SitumResponseHandler() {
    @Override
    public void onListReceived(List data) {
        // se reciben los POIs exteriores del edificio seleccionado
    }

    @Override
    public void onErrorReceived(int statuscode, Header[] headers, byte[] bytes, Throwable throwable) {

    }
});
```

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Android SDK: Routes

```
/**
 * Se descargan los paths del edificio seleccionado para poder crear rutas
 */
situmDataManager.fetchRouteCalculatorForBuilding(building, new SitumRouteCalculatorResponseHandler() {
    @Override
    public void onRouteCalculatorReceived(SitumRouteCalculator scr) {
        // SitumRouteCalculator se encarga de crear las rutas tanto para personas con
        // movilidad reducida como las que no
        ArrayList<SitumFloorPoint> route = scr.computeRoute(from, to, Route.ACCESSIBLE);
        // se puede calcular la distancia de la ruta en metros
        float distance = SitumRouteCalculator.distanceToGoal(route);
    }

    @Override
    public void onErrorReceived(int statuscode, Header[] headers, byte[] bytes, Throwable throwable) {

    }
});
```

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Android SDK: Events

```
/**
 * Se descargan todos los eventos del edificio seleccionado
 */
situmDataManager.fetchEventsForBuilding(building, new SitumResponseHandler() {
    @Override
    public void onListReceived(List data) {
        // se reciben los eventos del edificio seleccionado
    }

    @Override
    public void onErrorReceived(int statuscode, Header[] headers, byte[] bytes, Throwable throwable) {

    }
});
```

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Android SDK: Positioning

```java
/**
 *  Situm Indoor Positioning System
 */
final SitumIPSManager ipsManager = new SitumIPSManager(this);

ipsManager.start(building, Sensors.USE_WIFI, Sensors.USE_BLE, Sensors.USE_MAGNETOMETER);

/**
 * Recibe la localizacion en interior
 */
ipsManager.setPoseReceiver(new SitumPoseReceiver() {
    @Override
    public void onPoseReceived(SitumLocation location) {

    }
});
```

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

Get into building indoor location apps!

Public release coming soon…

Join early access program for developers:

- Location **SDK for Android & iOS**.
- Private **Dashboard**
- **Map tool** for fast deployment.

situm@situm.es

CONFIDENTIAL INFORMATION © 2015. SITUM Technologies

adrian.canedo@situm.es
@adri_canedo

javier.casanova@situm.es
@javorcd

situm@situm.es
@situm_es

Thank you !