

# Development of Mobile Application for the Management and Administration of Multimedia Content for the Radio and Television Commission of Tabasco

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## Abstract

Previously, if it was required to know what was happening in our town, we had the local gazettes and newspapers; When it was required to know national or international events, there are specific newspapers that communicated this information. When you wanted to know "the gossip" of society, artists or entertainment media, socials magazines and entertainment were the "correct" source of information. The main disadvantage of these means of communication is that they could be difficult to obtain, either due to the cost and shortage of copies, and when the information was finally obtained it was no longer so "up-to-date", the event had long taken place. Radio and television are not exempt from this change. Previously, if you wanted to be informed, the interested party had to be in the right place at a specific time, in front of a radio or television at the time of the news or the program of your liking.

Due to all the above mentioned and in response to the need for access to complete and timely information, as well as content of interest and current affairs, it is necessary that the Radio and Television Commission of Tabasco join the "Digital Era" to continue with the fulfillment of its commitment to society through an application that allows its consumers easy access to its programs and content. That is why that in collaboration with the Commission on Radio and Television of Tabasco, this paper expresses the documentary and digital research and interviews to create a structure suitable for the development of mobile information application that allows the CORAT have this essential technological tool.

**Keywords:** Media, media, Information Technology, Consumed owners Information On, Mobile Application, Mobile Device, CORAT.

## 1. INTRODUCTION

### Current context of the Tabasco Radio and Television Commission

At present, the main communication channels of CORAT are radio and television, which transmits via radio frequency. It also has a website showing the content of their programs, as well as with streaming (live) from to its television programming; nevertheless, nowadays this is considered access to information "limited" to the places where consumers are and the devices that the consumer has if we consider that not all of us carry a TV, radio or computer to the street, to work or when we run errands. For all the above, the media have been increasing and developing exponentially to the new generations through the applications and tools available on telephony or mobile devices.

The technology is continually growing by leaps and bounds, based on the needs of the modern lifestyle, this includes being cooped up all day to be cautious in our new "normal" pandemic, to be outside all day for work, studies or other needs. It is precisely for people who have information and content needs that are not restricted to forced times and places, that the media have chosen to make digital media their main service channel, the main reason why the **need** to perform a platform accessible to mobile devices with internet access most used by today's society, ranging from Tablets or iPads, laptops and smartphones.

Developing an **application mobile** allow for the CORAT updated and be at the forefront in the media with the help of new technologies, obtaining greater reach among consumers regardless of age, social class or geographic location which can be accessed in any corner of the world with internet access and a mobile device. For all the above, it is essential to develop an application that can be used in the largest number of current mobile devices, that is easy for the consumer to use and that gives them access to all the information they need, when they need it, no matter where they are. is found.

## 2. CONTENT OF NEWS MODULE

The news module will contain the following elements:

1. Shows the news by categories: Tabasco (state news), Sports (national and international), General (national and international news), Culture (social, scientific, historical and general culture content), Shows (national and international); facilitating the user to search for the content of interest.
2. The news will be published in chronological order and the user will be able to navigate between them quickly and comfortably by dragging the news upwards, avoiding the annoying use of next and previous buttons that can cause image refresh lethargy and excessive data consumption. This feature is what distinguishes the user-friendliness of the interface.
3. The news will be automatically updated along with the contents of the official website of the Tabasco Radio and Television Commission.

The fact that makes it essential for the CORAT application to have a news section is due to the imminent need of consumers to have useful, accurate and timely information, due to all the events that are currently taking place such as: the PAR virus. COV-2, insecurity and the constant bombardment that is received in social networks of false information. Allowing CORAT to fulfill its commitment to keep its users informed at all times with reliable information, allowing, in turn, to seek the desired positioning by the Tabasco Radio and Television Commission.

## 3. TECHNOLOGIES USED

The CORAT application will use the following tools for its development:

### 3.1 Ionic framework

Ionic Framework is a unique open-source user interface toolkit for building high-quality desktop and mobile applications with web technologies (HTML, CSS, and JavaScript) with integrations for popular frameworks such as Angular and React.

Ionic “is an open source technological structure (Framework) that is used in the development of hybrid mobile applications, that is, HTML5, CSS and JavaScript are combined resulting in applications with a friendly and intuitive interface for the user that is later they sell or download on platforms such as Android or IOs ”.[1]

Ionic, you can deploy a native iOS or Android app, native desktop app, or web app, all from a single shared codebase.

### 3.2 Angular

Framework and platform used to create single page client applications using HTML format and the TypeScript language, which implements basic and optional functions such as a set of data libraries that are imported into your applications.

The design of an Angular application is defined by a set of NgModules, which are basically the building blocks that make up the Angular framework, organized in NgModules that collect the related code into functional sets. Generally, an application always has at least one root module that allows startup and also has many more function modules: [2]

- The *components* define "views", which in turn, are sets of screen elements Angular can select and modify according to the logic and data program. It is through the *decorators* that they mark their type and provide metadata that tells Angular how to use them. Modules, components, and services are *classes* that these decorators use.
- The metadata for a *component class* associates it with a template that defines a view. A template combines ordinary HTML with Angular directives and binding markup that allow Angular to modify the HTML before rendering it for display.
- The *components* use services that provide specific functionality that is not directly related to the views. Service providers can inject themselves into components as dependencies, making their code modular, reusable, and efficient. The metadata for a *service class* provides the information Angular needs to make it available to components through dependency injection (DI).

### 3.3 WP API REST Controller [3]

REST API WordPress provides an interface that allows the applications interact UAR your site WordPress sending and receiving data as JSON (JavaScript Object Object Notation). At the same time, it is the foundation of the WordPress Block Editor allowing your theme, plugin or custom application to introduce new and powerful interfaces to manage and publish the content of your site.

With the WordPress API REST, a plugin is created that provides:

- a completely new admin experience for WordPress,
- a new interactive user interface experience, as you can bring your WordPress content into completely separate applications.

An important thing to understand about the API is that it enables the block editor and modern plugin interfaces without compromising the security or privacy of your site. The REST API is a feature of WordPress oriented developer, provides NDO access to information about the content of your site and implements NDO the same restrictions authentication: the content is public in place generally access the public through the REST API, while private content, password protected content, internal users, custom post types, and metadata are only available with authentication or if you specifically set it.

#### 4. DEVELOPMENT

The first step for the development of the CORAT application was to create an Api Rest Service to analyze the objects that would be obtained from the official CORAT website, in this way the properties and structure of the objects would be identified, defining in turn the properties to implement in our modules. The request to the Api Rest was successful, the objects were obtained in Json format. The following code is an example of the objects obtained in response to the CORAT news Api Rest:

```
{
  "id": 101331,
  "date": "2021-04-03T22:10:22",
  "date_gmt": "2021-04-04T04:10:22",
  "guid": {
    "rendered": "https://corat.mx/?p=101331"
  },
  "modified": "2021-04-03T22:10:25",
  "modified_gmt": "2021-04-04T04:10:25",
  "slug": "mexico-llega-a-las-204-mil-011-defunciones-a-causa-del-covid-19-ssa",
  "status": "publish",
  "type": "post",
  "link": "https://corat.mx/mexico-llega-a-las-204-mil-011-defunciones-a-causa-del-covid-19-ssa/",
  "title": {
    "rendered": "México llega a las 204 mil 011 defunciones a causa del Covid-19: Ssa"
  },
  "content": {
    "rendered": "\n<ul><li><strong><em>El número de casos totales llegó a 2 millones 249 mil 195</em></strong></li></ul>\n\n<p>TVT | Redacción digital </p>\n\n<p>La Secretaría de Salud informó que hasta este sábado los contagios confirmados por Covid-19 son 2 millones 249 mil 195, con un incremento de mil 838 casos positivos, mientras que los decesos se elevaron en 157, con un acumulado de 204 mil 11 fallecimientos desde el inicio de la pandemia.</p>\n\n<p>En el Informe Técnico Diario sobre el avance de la pandemia en México, destaca que los casos sospechados son 438 mil 480; mientras que de los 6 millones 133 mil 559 personas que se han aplicado una prueba de detección del virus, 3 millones 445 mil 884 han obtenido un resultado negativo.</p>\n\n<p>Por lo que respecta a los casos activos, es decir, con síntomas en los últimos 14 días, indicó que al corte de este 3 de abril se registraron 26 mil 293. La Ciudad de México se mantiene como la entidad con mayor número de casos activos, con más de 3 mil, seguidas del Estado de México Guanajuato y Puebla, con más de mil contagios activos, pues en su conjunto concentran el 58 por ciento de los casos activos del país.</p>\n\n<p>Fuente: Con información de La Jornada</p>&#8216;ebp&#8217;</p>\n",
    "protected": false
  },
  "excerpt": {
    "rendered": "<p>El número de casos totales llegó a 2 millones 249 mil 195 TVT | Redacción digital La Secretaría de Salud informó que hasta este sábado los<span class=\n\n"
  },
  "protected": false
},
"author": 7,
"featured_media": 101335,
"comment_status": "open",
"ping_status": "open",
"sticky": false,
"template": "",
"format": "standard",
"meta": [],
"posts?categories": [
```

```

64,
68,
63
],
"_links": {
  "self": [
    {
      "href": "https://corat.mx/wp-json/wp/v2/posts/101331"
    }
  ],
  "collection": [
    {
      "href": "https://corat.mx/wp-json/wp/v2/posts"
    }
  ],
  "about": [
    {
      "href": "https://corat.mx/wp-json/wp/v2/types/post"
    }
  ],
  "author": [
    {
      "embeddable": true,
      "href": "https://corat.mx/wp-json/wp/v2/users/7"
    }
  ],
  "replies": [
    {
      "embeddable": true,
      "href": "https://corat.mx/wp-json/wp/v2/comments?post=101331"
    }
  ],
  "version-history": [
    {
      "count": 1,
      "href": "https://corat.mx/wp-json/wp/v2/posts/101331/revisions"
    }
  ],
  "predecessor-version": [
    {
      "id": 101336,
      "href": "https://corat.mx/wp-json/wp/v2/posts/101331/revisions/101336"
    }
  ],
  "wp:featuredmedia": [
    {
      "embeddable": true,
      "href": "https://corat.mx/wp-json/wp/v2/media/101335"
    }
  ],
  "wp:attachment": [
    {
      "href": "https://corat.mx/wp-json/wp/v2/media?parent=101331"
    }
  ],
  "wp:term": [
    {
      "taxonomy": "category",

```

```

        "embeddable": true,
        "href": "https://corat.mx/wp-json/wp/v2/posts?categories&post=101331"
    },
    "curies": [
        {
            "name": "wp",
            "href": "https://api.w.org/{rel}",
            "templated": true
        }
    ]
}
}
}

```

Subsequently, an interface was created to convert the data in Json format to TypeScript, since the angular framework and the Ionic platform, chosen for this project, use that language. Below is an example of the interface created:

```

src > app > interfaces > TS interface.ts > Article > title
7   }
8   export interface Article {
9       id: number;
10      date: string;
11      date_gmt: string;
12      guid: Guid;
13      modified: string;
14      modified_gmt: string;
15      slug: string;
16      status: string;
17      type: string;
18      link: string;
19      title: Guid;
20      content: Content;
21      excerpt: Content;
22      author: number;
23      featured_media: number;
24      comment_status: string;
25      ping_status: string;
26      sticky: boolean;
27      template: string;
28      format: string;

```

Figure 1. interface created to convert data from Json to TypeScript

Next step, a constant was created within environment.ts where the URL in which the Rest Api will be consumed will be saved. The following code shows the constant created:

```

export const environment = {
  production: false,
  apiUrl: 'https://corat.mx/wp-json/wp/v2'
};

```

Once the proper functioning of the Api Rest has been verified, a service will be created that performs the http requests in Ionic, considering the segmentation by categories of the modules. In this particular case it will be the news service. The following code is an example of how this service is structured:

```

import { Injectable } from '@angular/core';
import { HttpClient, HttpHeaders, } from '@angular/common/http';
import { environment } from '../environments/environment';

const apiUrl = environment.apiUrl;

@Injectable({
  providedIn: 'root'
})
export class NoticiasService {

  headlinespage = 0;
  categoriaActual = '';
  categoriaPage = 0;

  constructor(private http: HttpClient) {}

  private ejecutarQuery<T>(query : string){
    query = apiUrl + query;
    return this.http.get<T>(query, {
      headers: {
        'Accept': 'text/plain',
        'Content-Type': 'text/plain'
      },
    });
  }

  getTopHeadlines() {
    this.headlinespage++;

    var cadena = '/posts';
    return this.ejecutarQuery<any>(cadena);
  }

  getTopHeadlinesCategoria(categoria:string){
    if(this.categoriaActual === categoria){
      this.categoriaPage++;
    } else {
      this.categoriaPage = 1;
      this.categoriaActual = categoria;
    }
    var cadena = `/posts?categories=${categoria}`;
    return this.ejecutarQuery<any>(cadena);
  }
}

```

Next, a component was created in angular where all the news data is ordered and managed, and in which the data that will be shown to the user through their news screens can be selected. Below is an example of the code that was used for the development of the news screen:

```

<ion-card-header>
  <ion-card-subtitle>
</ion-card-subtitle>
  <ion-card-title (click)="abrirNoticia()" style="color : black">{{noticia.title.rendered}}</ion-card-title>
  <div class="noticia-more">

```



```

<ion-button fill="clear" (click)="ExtendMenu()">
  <ion-icon name="ellipsis-vertical-outline">
</ion-button>
</div>
</ion-card-header>
<ion-
img *ngIf="noticia.better_featured_image.source_url" [src]="noticia.better_featured_image.source_u
rl" (click)="abrirNoticia()"></ion-img>
<ion-card-content>
  <div [innerHTML]="noticia.content.rendered"></div>
</ion-card-content>

```

To continue with the development of the news category screens, a component was created for each category in which the title, content and image of the news will be displayed. This is an example of the code used for the “sports news” category:

Below is an example of how the user views the news screen:



Figure 2. News screen.

Once the configuration of the news module is finished, we proceed to the configuration of the Streaming TVT module, which consists on the retransmission of the Tabasco Television signal from the CORAT website. The user would identify this service as what is commonly known as: “live” transmission, since the contents will be subject to the original television transmission schedules, however, it would have all the mobility and comfort advantages that it offers. the device where you installed the application. The code used for the development of the Streaming TVT is shown below:

```
import { Component, OnInit } from '@angular/core';
```



```
import { NoticiasService } from '.././../services/noticias.service';
import { Article } from '.././../interfaces/interface';

@Component({
  selector: 'app-view-deportes',
  templateUrl: './view-deportes.component.html',
  styleUrls: ['./view-deportes.component.scss'],
})
export class ViewDeportesComponent implements OnInit {
  noticias: Article[];
  constructor(private NoticiasService: NoticiasService) {
    this.noticias = [];
  }
  ngOnInit() {
    this.getDeportes();
  }
  getDeportes(){
    this.NoticiasService.getTopHeadlinesCategoria('74')
    .subscribe( resp => {

      console.log(resp);
      for(let res of resp){
        this.noticias.push(res);
      }
      console.log(this.noticias);
      /* this.noticias.push(...resp['articles']); */
    });
  }
}
```

Below is an Figure of how the user views the Streaming TVT screen:



Figure 3. Streaming TVT screen

Once the configuration of the Streaming TVT module is finished, we continue with the Streaming Radio CORAT module, which consists on the retransmission of the Radio signal taken from the CORAT website in real time. Giving the user the possibility of mobility from one place to another regardless of the means of transport, while

staying informed, or while enjoying musical, social and / or cultural content. Below is the code used for the development of the Streaming Radio CORAT:

```
<ion-card>
  <ion-item color="primary">
    <ion-label>Transmisión en vivo TVT</ion-label>
  </ion-item>
</ion-card>
<ion-card>
  <ion-img (click)="abrirReproductor()" src="https://image.freepik.com/vector-gratis/plantilla-reproductor-video-reproductor-multimedia-pagina-web_186930-293.jpg"></ion-img>
</ion-card>
```

Below is an Figure of how the user views the Streaming Radio CORAT screen:



Figure 4. CORAT Radio Streaming screen.

## 5. CONCLUSION

With the development of this project, it is possible to maximize and the current resources from CORAT (CORAT website), since with a minimum investment (CORAT application project) and minimal maintenance it is possible to reach new segments of users who had not reached before. With the creation of the application, the boundaries of data transmission, which would otherwise be very expensive, are being broken and access to its contents is allowed practically to users from all over the world and of all ages, who have a smart device that allows the installation of the application and has an internet service.

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