

Glocal News: An Attempt to Visualize the Discovery of Localized Top Local News, Globally

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Abstract. Glocal News is a web app, a mashup of Google News and Google Maps, which attempts to visualize top local news, globally, in 70 languages. The news headlines, which are displayed on an *infowindow*, are provided by the public Google News RSS. The algorithm, built in JavaScript, uses geocoding in order to extract the toponym from a given location and the local storage technique in order to store the news temporary on the user's browser.

Keywords: Data visualization, Location, News, Localization, Google News, Google Maps, Geocoding, Local Storage, HTML, CSS, Javascript.

1 Introduction

Current information landscape enables people to have access to huge amounts of information, frequently in semi-structured data, which cannot be processed by humans as it is, leading to a phenomenon commonly named as “information overload”.

Users discover news of interest in two ways: searching and browsing. If they have something specific in mind, they type usually relevant keywords on search engines. On the other hand, when they don't have something to look for, they just browse for stuff that arouses their curiosity.

We tried to combine the above “methods”, satisfying the searching “needs” with specific local news and the browsing “needs” making it pleasant and playful to drag and drop the pin in order to discover more news.

Until now, news are presented usually in a timeline or divided in categories such as Politics, Sports, and International. However, many news portals are gradually embracing the crowd-sourced web (e.g. CNN iReport), providing news discovery per location or neighborhood. That trend was our main inspiration.

Our project, www.glocalnews.com, is a web application described as a mashup [1,2] of Google News built on top of Google Maps. A mashup, is a web page, or web application, that uses and combines data, from two or more sources to create new services. The term implies easy, fast integration, frequently using open application programming interfaces (API) [3] and data sources to produce enriched results.

The field of mashups started to grow the last 5 years following the establishment of Web 2.0. Currently, there are several similar implementations out there, but they are

pretty niched, such as Trendsmap [4] which presents the most popular hashtags per location, or a project [5] showing BBC News on a map only for UK though.

The one that resembles our idea is Newsmap [6] by Marcos Weskamp, which shows Google News top news not on map but on a treemap, providing just the basic languages.

2 The Web App

2.1 Functionality

Our objective is to display the top five news of every place on earth, from the largest country to the tiniest village, adjusting the results by taking into account your language of preference.

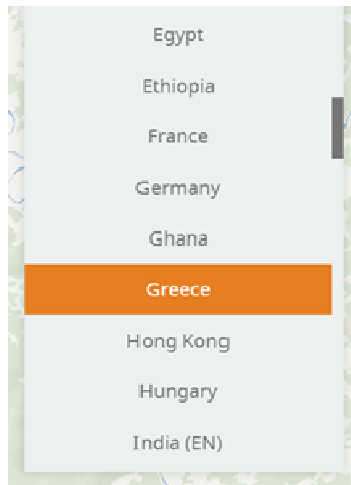


Fig. 1. The Localization Menu

A given user, firstly, chooses his language from the dropdown menu Localization [Fig.1], secondly, drags the pin to the desired place [Fig.2]. The browser's zoom level adjusts dynamically the results on the window. So, the same coordinates represent different results, according to the abstraction level.

To elaborate on that, as the user zooms in, the results adjust automatically as follows: Country / State / Province / County / Municipality (roughly, due to the fact that many countries follow different administrative division policy).

2.2 Localization

Currently, we support approximately 70 languages. It is worth to note that for some bilingual countries, the user can choose between the two languages. E.g. in Belgium we provide both Dutch and French version. If we can't find results in the local language, we provide the respective ones in English.



Fig. 2. The German user interface showing France's top news

2.3 Potential Use

We imagine the prospective user as a tourist, a traveller planning a trip, a journalist, a businessman, a jetsetter, you name it. The aforementioned user is eager to discover news about his/her destination, directly, quickly, in one's native language.

Of course, that does not exclude the casual user who just wants to have a comprehensive view of the world happenings.

2.4 Technology

The web app is developed in HTML, CSS and Javascript. The Javascript algorithm, initially, removes unnecessary elements from the map, such as streets, leaving just the place names. Then it takes care of the zoom level, the geocoding [7], the local storage, the query, the presentation, the geolocation and the exceptions in case it cannot find news.

The local storage technique of HTML5 gives us the freedom of not using web servers. All data are loaded the moment the user's click fires the query link and are saved temporary on browser. The query that hits Google News [8] is the following:

```
https://news.google.com/news/feeds?pz=1&hl=' + localStorage.h1 + '&ned=' + localStorage.ned + '&q=' + query + '&ie=UTF-8&output=rss'
```

One of the most crucial parts of the algorithm is the reverse geocoding, where we convert the coordinates to place names:

```

getQuery::
//Swaps strings and numbers making a valid array derived
from searchTypes
var temp_types = ObjToArray(searchTypes);
//Detects available administrative levels (country,region,city etc...)
for (var i in results.reverse()) {
  for (var j in temp_types) {
    if (results[i].types[0] == temp_types[j]) {
      temp_types.splice(j, 1);
      var bounds = get-
Bounds(results[i].geometry.viewport);
      query_results.push({/*Data for names, administra-
tion levels and bounds*/});
    }
  }
}
//Orders the results as seen in searchTypes variables
query_results.sort(function (a, b) { return searchTypes[a.type] - searchTypes[b.type] });
//Gets the right name according to zoom level
query = encodeURIComponent(getName(query_results));

```

Of course, in order to form the query rightly, we have to take map viewports and administration levels into account:

```

getName::
//We get the map's viewport and then check for each administrative level's viewport(written in "data" variable).
//If it fits, we return that result to search for it at Google news.
var s = size(map.getBounds().toSpan());
var i = 0;
while (size(data[i].bounds.toSpan()) > s && i + 1 < data.length) i++;
query_title = data[i].name;

```

Here you can see the way our code chooses the administration levels (mentioned in 2.1):

```

var searchTypes = {
  "country": 0, "administrative_area_level_1": 1, "administrative_area_level_2": 2,
  "administrative_area_level_3": 3, "political": 4,
  "locality": 5, "sublocality": 6
};

```

Finally, the results are presented on an *infowindow*, ready to be consumed by the end user's eyeballs:

```
displayFeed::
//Every query is kept in localstorage and it is accessed
with [set/get]Data() functions
var f = getData().filter(function (v) { return v.q ==
query })[0];
if (f == null || /*Expired*/) {
  var s = getData();

  feed = new google.feeds.Feed(_url());
  feed.setNumEntries(5);
  feed.load(function (result) {
    if (!result.error) {
      /*Load rss contents*/
    }
    else {
      infowindow.setContent("This location provides no news
currently");
    }
    var d = { /*Data*/ };
    /*Update data according to d*/
    setData(s);
    infowindow.open(marker.get('map'), marker);
  }
}
```

2.5 Known Issues

At the core of geoparsing's difficulty are the many ambiguities present in natural language, including ambiguities related to toponyms. The type of ambiguity most relevant for geoparsing is termed geo/non-geo ambiguity [9]. For example, "Paris" can refer to "Paris, France", "Paris, Texas" but might also refer to the person "Paris Hilton".

We tried to overcome this ambiguity by forming the search query as follows: [City, County], but the displayed results were reduced. Understandable, due to the fact that e.g. an article can just refer to "Athens" instead of "Athens, Attica", or "Athens, Greece", reducing the redundancy. The above problem could be addressed with supervised machine learning methods.

3 Further Work

In order to improve the user experience, we are thinking of presenting the results into subsections such as: Entertainment, Sports, Technology, Politics etc. using probably a SOM [10,11] technique helping us clustering the relevant articles, keeping in mind the visualization [12] principles to avoid information overload. Also, the idea of solving the issue described on section 2.5, is on the roadmap. Another interesting area is the

personalized news [13]. Google News provides that option to its users but since there is not an available API, we are still puzzled how we can integrate this extra feature.

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