

Mobility for Everyone

For people with disabilities, performing everyday activities within the city requires significant effort due to traffic jams, lack of supporting infrastructure, lack of specialized building access, and so on. It is imperative to help them overcome these difficulties. This is especially important for the City of Zagreb due to lack of data regarding the existing infrastructure. Our idea was to gather data regarding the location of parking spaces reserved for people with disabilities as well as locations of public institutions and to present them using an interactive digital map.

We applied our project proposal for the 'GIS Day Contest 2017' and were awarded the third place. We were therefore given free access to GIS applications for gathering, processing and visualizing spatial data on maps, intended for use by people with disabilities and those who are helping them in performing everyday activities.

The goal of our project is to help people with disabilities in their everyday activities within the city. To get acquainted with problems faced by people with disabilities, we devised a specialized questionnaire which we sent to various associations as well as directly to people with disabilities. By analyzing the questionnaires, we decided to cover four city districts in our project: Donji Grad, Trnje, Trešnjevka Jug, and Trešnjevka Sjever.

We discovered that there is a lack of specific information regarding the location of parking spaces reserved for people with disabilities and have decided to address this problem through our project.

Data Collection Using Mobile Phones

The most time-consuming activity was mapping the required data using the Mobile Data Collection (MDC) application on our smartphones. A simplified interface and automatic GPS

tracking greatly added to the efficiency and precision of our data gathering activities with MDC. We divided the spatial and other specific data into several categories:

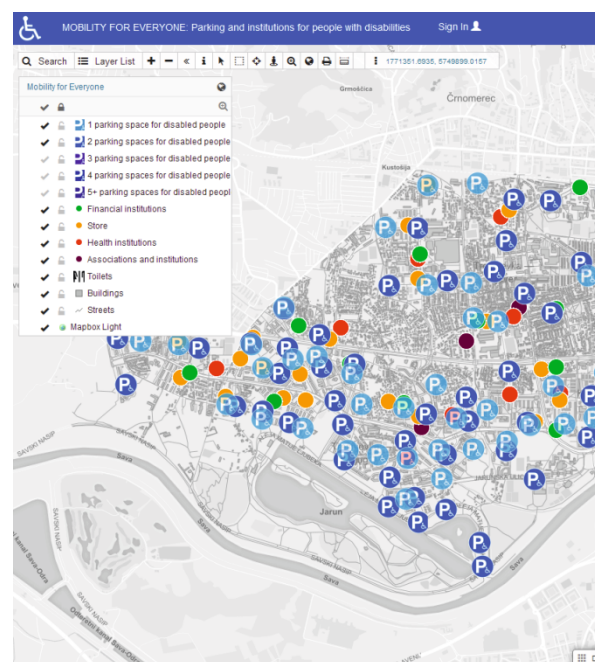
- Parking spaces
- Financial and health institutions
- Shops
- Associations
- Institutions.

By splitting into three teams, each consisting of two people, we divided the four city districts into smaller, more manageable blocks. After two and a half months of mapping and data gathering, we mapped out 800 points, 500 of which were parking spaces. We significantly improved our organizational skills with efficient teamwork.

Since the data gathered with MDC was available for editing immediately, we began our work editing data using the Map Editor shortly after our field mapping activities. This flagship GIS Cloud app for data editing provides many data operations, as well as styling symbology and data analysis. There was a certain amount of redundant data, which was easily corrected or removed. Since the most relevant data was that on parking spaces, we highlighted them using a given symbol and mono-coloured gradient, while other objects were marked with circles of various colours. In short, work in Map Editor provides the most creativity for cartographers and GIS analysts.

Sharing Maps with the Public to Aid People with Disabilities

Our goal was to allow people with disabilities to easily access data on parking spaces and other information of interest to facilitate their mobility around the city. For end-user sharing, we used our map as a basis for the public Map Portal, a simple app which features multiple maps. Due to advanced but simple data settings, zooming into a map enables better visualization using data optimization.



We also branded the portal with a colour and a logo.

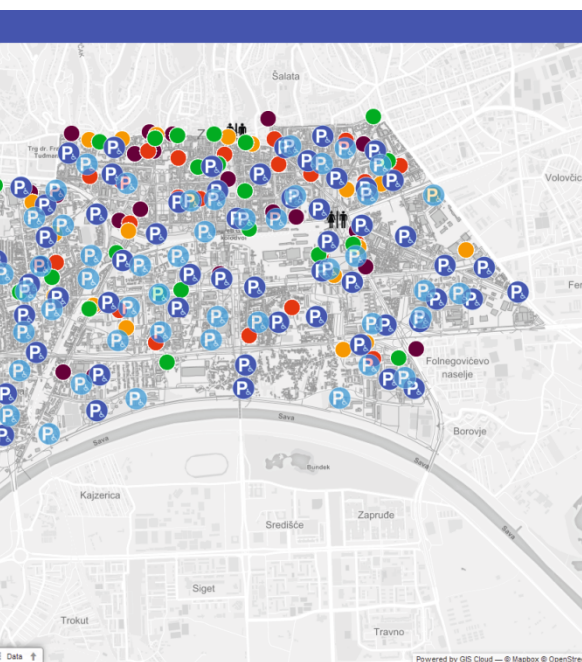
Open the 'Mobility for everyone' Map Portal interface

The significant advantage of the Map Portal is that the data can be filtered, which simplifies working with a map. However, since data overview was already straightforward, we did not include a filter on a map. Working on GIS Cloud applications, we learned they simple and easy to use, and without GIS Cloud, our project could not be realized.

Finally, the users of the mobility map can shorten the time and planning of their activities, and thus the map portal facilitates getting around the city. We are glad that the project has come to an end and that we have contributed to public well-being, and we hope it will make a difference in the lives of people with disabilities, improving their mobility.

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Mobilnost za svakoga



Osobama s invaliditetom obavljanje svakodnevnih aktivnosti u gradu predstavlja veliki napor zbog čestih gužvi u prometu, neadekvatne prateće infrastrukture, onemogućenog posebnog pristupa na ulazu zgrada, itd. Stoga im je potrebno olakšati snalaženje u prostoru. U Zagrebu je to osobito važno jer manjka informacija o lokaciji objekata. Naša je ideja bila da prikupimo podatke o rezerviranim parkirnim mjestima za invalidne osobe, o javnim ustanovama i institucijama i to objedinimo na digitalnoj interaktivnoj karti.

Idejni projekt prijavili smo na „GIS Day Contest“ te osvojili treću nagradu. Time nam je omogućeno besplatno korištenje GIS aplikacija za prikupljanje, obradu i vizualizaciju prostornih podataka na karti, kao krajnjem cilju, kojom će se koristiti osobe s invaliditetom i oni koji im pomažu pri obavljanju svakodnevnih obaveza.

Cilj je projekta olakšati osobama s invaliditetom obavljanje aktivnosti u gradu. Sa svrhom upoznavanja problema zagrebačkih udruga i samih osoba s invaliditetom, sastavili smo i poslali im anketni upitnik. Pozdravili

su našu ideju i ispunili upitnik. Analizom dobivenih odgovora, ograničili smo prostorni obuhvat provedbe projekta na četiri središnje gradske četvrti (Donji Grad, Trnje, Trešnjevka Jug i Trešnjevka Sjever).

Uvidjeli smo kako je od infrastrukture najpotrebnije znati gdje se nalaze parkirna mjesta rezervirana za osobe s invaliditetom te smo se u daljnjoj realizaciji projekta bazirali na parkiralištima.

Prikupljanje podataka s pomoću mobitela

Drugi korak, vremenski najduži, bilo je kartiranje podataka koristeći Mobile Data Collection (MDC) aplikaciju na našim mobitelima. Jednostavno sučelje i automatska povezanost s GPS lokacijom olakšali su nam savladavanje forme MDC-a i prikupljanje podataka. Prostorne podatke i druge specifične informacije postavili smo u nekoliko opcija:

- parkirna mjesta
- financijske i zdravstvene ustanove
- trgovine
- udruge
- institucije.

Podijelili smo se u tri tima s po dvije osobe i razdijelili četvrti na manje blokove. Kartirali smo dva i pol mjeseca te prikupili više od 800 točaka, od kojih više od 500 čine parkirna mjesta. Timskim radom na terenu napredovali smo u organizacijskim vještinama.

Kako su podaci prikupljeni MDC-om s terenskog rada odmah dostupni za uređivanje, nedugo nakon terenskog kartiranja, počeli smo s uređivanjem karte u Map Editoru. On omogućava puno operacija s podacima, kao što je pridruživanje kartografskih znakova i analiza podataka. Neke redundantne točke bilo je lako korigirati ili izbrisati. Budući da su najrelevantniji prikupljeni podaci parkirališta, njih smo istaknuli ponudjenim znakom i gradacijom jedne boje klasificirali ih po broju invalid-

skih parkirnih mjesta. Ostale objekte prikazali smo istim kružnim oblikom u različitim bojama. Ukratko, rad s Map Editorom pruža kartografima i GIS analitičarima najveću kreativnost.

Javno objavljivanje karte kako bi se pomoglo invalidnim osobama

Naš je cilj bio omogućiti osobama s invaliditetom da lako pristupaju podacima o parkirnim mjestima i drugim informacijama od interesa kako bi se olakšala njihova mobilnost u gradu. Za krajnje korisnike odlučili smo stvoriti javni Map Portal koristeći našu kartu kao osnovu, jednostavnu aplikaciju koja omogućuje prikazivanje više karata na jednom mjestu. Zbog naprednih, ali jednostavnih postavki podataka, zumiranje omogućuje bolju vizualizaciju pomoću optimizacije podataka. Portal smo označili bojom i logotipom (<https://handicapparking.giscloud.com/>).

Otvorite sučelje Map Portala "Mobilnost za svakoga"

Značajna prednost Map Portala je u tome što se podaci mogu filtrirati, što pojednostavljuje rad s kartom. Međutim, budući da je pregled podataka već bio jednostavan, nismo imali potrebu uključiti filter na kartu. Radeći s aplikacijama GIS Clouda naučili smo da ih karakterizira jednostavnost i lakoća upotrebe, a bez GIS Clouda, naš projekt ne bi mogao biti ostvaren.

Konačno, korisnici karte mobilnosti mogu skratiti vrijeme i planirati svoje aktivnosti, pa na taj način naš portal olakšava kretanje po gradu. Drago nam je da je projekt došao do kraja i da smo doprinijeli dobrobiti javnosti i nadamo se da će napraviti razliku u životima osoba s invaliditetom, poboljšavajući njihovu mobilnost.

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