



SMART CITY DUBROVNIK

ENHANCING CITY EFFICIENCY WITH SMART CITY SOLUTIONS

Mato Franković, mayor of city of Dubrovnik



CITY OF DUBROVNIK

- POPULATION: 42.615
- NUMBER OF TOURISTS PER DAY: 14.000
- CITY TOTAL AREA: 21.35 KM²
- CITY FOUNDED IN 7th CENTURY
- CITY UNDER UNESCO PROTECTION





PROJECTS – SMART GOVERNMENT

- **SMART CITY DUBROVNIK STRATEGY** – Base document containing current state analysis of ICT services available in city of Dubrovnik and plans for development of SC projects and technologies, made publicly available on official city website for comments and suggestions
- 5 projects implemented in 2 years
- New projects in development





PROJECTS – SMART COMMUNITY

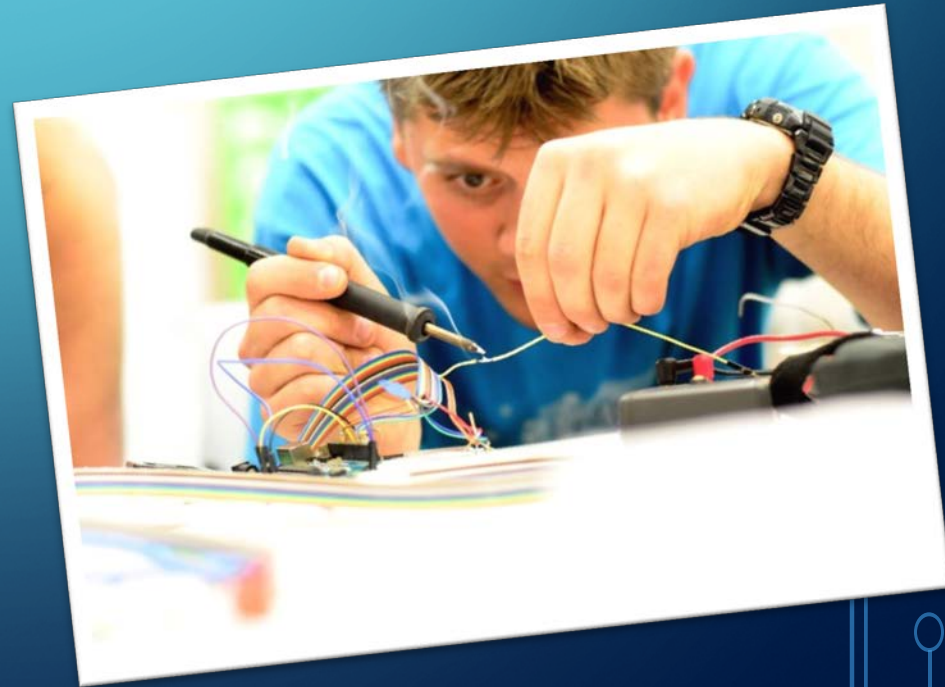
- **STARTUP WEEKEND DUBROVNIK** – Four years in a row, education and competition
- **CITY OS HACKATHON DUBROVNIK 2015** – Call to local engineers, programmers, developers, hackers and makers
- **CITY OS SMART CITY STARTUPS CONFERENCE 2016** – Another hackathon event, but this time with more workshops, more attendees and great international keynote speakers





PROJECTS – SMART COMMUNITY

- **SMART CITY LAB** – Coworking space open to public
- Free WiFi
- PCs and Macs
- Electronics equipment, IoT devices and sensors, 3D printer





PROJECTS – SMART COMMUNITY

- **DUBROVNIK EYE** – Web service with iOS and Android mobile applications for reporting communal and similar issues in the city. Reports from citizens are confirmed by the city government administrator and delegated to correct department. The citizens are notified of each status change of the issues they reported. All data is public and available online. <http://dubrovacko-oko.hr/>



Dubrovačko Oko

Prijavite problem sa svojih mobilnih uređaja





PROJECTS – SUSTAINABILITY

- **SMART SPRINKLERS** – Public parks irrigation system, moisture sensors, sprinklers, web
 - Edge computing implemented with local server at park's physical location
 - Humidity configuration downloaded from remote server
 - Humidity mapping and sprinkler automation set up on local server
- **SOLAR BENCH** – Air quality monitor + charging + mobile app (iOS and Android)





PROJECTS – VISITORS INFORMATION

- **DUBROVNIK CARD APP** – Mobile app (iOS and Android) , tourist information, iBeacons, navigation, discounts

Android app: <http://bit.ly/DubrovnikCard-Android>

iOS app: <http://bit.ly/DubrovnikCard-iOS>





PROJECTS – MOBILITY

- **SMART PARKING** – IR Parking sensors + web + mobile app (iOS and Android)
 - Edge computing implemented on parking's physical location
 - Information displayed on local LCD display is gathered locally
 - System functional even when Internet connection not available

Android app: <http://bit.ly/SmartParking-Android>

iOS app: <http://bit.ly/SmartParking-iOS>





PROJECTS – MOBILITY

- **PEOPLE COUNTER** – Web site with real-time data about total number of people in the Old Town, 6 people counting cameras in historic core + 120 on intersections
 - Edge computing implemented by analysing videos locally
 - Only the numbers of entrances/exits are sent to remote server

TELEOPERATOR MOBILE DATA

3 weeks of data from cell towers

SMART CITY MOBILE APPS

users geolocation, heatmapping, crowd management

Website: <http://dubrovnik-visitors.hr>





PROJECTS – MOBILITY

SMART CITY MOBILE APPLICATIONS

Get exact GPS location data about people using your smart city apps (Smart Parking, Dubrovnik Eye, Dubrovnik Card...)



PEOPLE COUNTING CAMERAS

Count the total number of people in the city using cameras or other methods



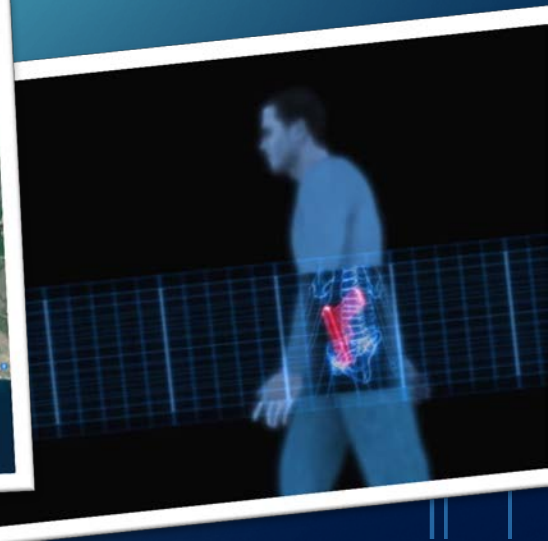
Generate heatmaps (people density) by combining GPS location data with total number of people in the city





FUTURE PROJECTS

- CITY WIDE MESSAGING SYSTEM
- FREE WIFI IN WHOLE CITY
- LARGE SCALE TRAFFIC MONITORING





HVALA !

THANK YOU !

TEŠEKKÜR EDERIM !

Mato Franković, mayor of city of Dubrovnik