
Joint Workshop of the GOFc-GOLD SCERIN and MedRIN Networks

CIHEAM conference center, Chania, Greece, July 16 – July 19, 2024
Land Cover Change (LCC) and Extreme Events in the Context of Climate Change

Mediterranean Agronomic Institute of Chania
Region of Crete
Eratosthenes Center of Excellence, Cyprus University of Technology
Aristotle University of Thessaloniki
NASA LCLUC Program
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Harnessing Data and Technology to Combat COVID-19 – Smart4COV19 Project

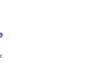
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Introduction

Overview: The Smart4COV19 project aims to integrate advanced telemedicine and remote sensing technologies to combat COVID-19 and enhance urban resilience.

Goals:

- Rapid identification of COVID-19 and similar infections
- Prevention of person-to-person transmission
- Development of a comprehensive health integration system

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System Components

Technologies Used: GNSS (Global Navigation Satellite System)

on smartphones Affordable GNSS receivers

LIDAR technology

3D smart city model

Features :

Smartphone app linked with GNSS positioning COVID-19 spatial database

Environmental monitoring for weather and air pollution correlation

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3D Smart City Model

Functionality:

Tracks individual data

Accessible via a smartphone app

Helps in monitoring disease spread and planning responses

Data Utilization:

Combines GNSS, LIDAR, and COVID-19 data

Maps zones of risk based on structures and crowd density

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Telemedicine Integration

Benefits:

Provides support to mildly ill patients Reduces exposure to COVID-19 cases

Utilizes smartphones for remote consultations and monitoring

Sensors Used:

Heart rate

Oxygen levels

Temperature sensors

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Environmental Monitoring

Objective:

Assess the impact of weather and air pollution on COVID-19 risk

Data Sources:

TROPOMI-S5p aerosol data
PM concentrations over Burgas, Bulgaria

Findings:

Correlation between weather patterns, air quality, and COVID-19 transmission

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Air Quality Monitoring

Locations:

Sofia and Burgas, Bulgaria

Tools:

IQAir Visual outdoor stations

Monitors PM₁, PM_{2.5}, PM₁₀, temperature, humidity, and pressure

Impact:

Provides real-time data on air quality

Assesses respiratory risks linked to fine particulate matter

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Data Integration and Analysis

Geodatabase Model:

Combines reference, satellite, meteorological, and COVID-19 morbidity data Visualized using ArcGIS Pro

Outputs:

Maps displaying air quality and COVID-19 cases Analysis of spatial patterns and risk factors

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Conclusion

Summary: Smart4COV19 leverages advanced technologies for effective COVID-19 detection and management, contributing to resilient and responsive urban healthcare systems.

Future Directions:

Expansion of telemedicine capabilities

Further integration of environmental and health data
Continued development of smart city infrastructure

Acknowledgments:

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Thank you for your Attention!

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Q&A

Questions and Discussion: ````