

Annex 5 – H2i Balkans and Aqua Procon Successfully Complete UNDP-Funded project

PROJECT TITLE: QUANTIFYING REAL TIME RAINFALL INTENSITY BASED ON COMPUTER VISION AND MACHINE LEARNING

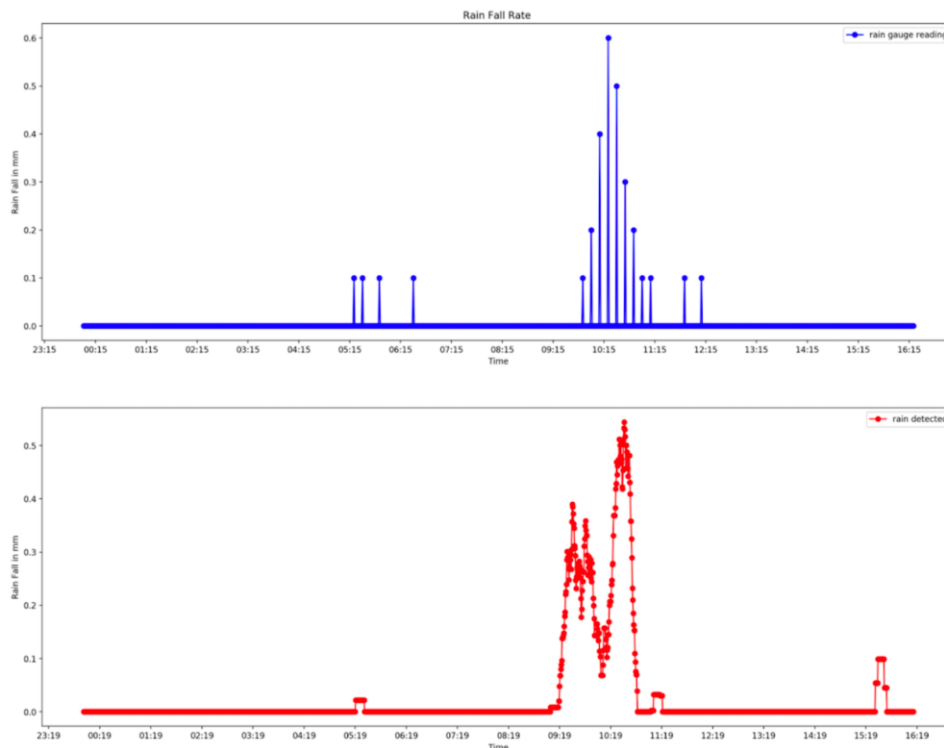
SARAJEVO, NOVEMBER 9, 2020

In January 2020, a partnership between H2i Balkans (Sarajevo, Bosnia-Herzegovina) and AQUA PROCON (Brno, Czech Republic) won a support of the UNDP Challenge Fund for the project on “Quantifying real time rainfall intensity based on computer vision and machine learning” in December 2019. The grant is a part of the Czech-UNDP Partnership for Sustainable Development Goals (CFCS) project, aimed to facilitate transfer of technology and solutions that will help address the region’s development challenges.

The ultimate project beneficiary is **Federal Hydro Meteorological Institute (FHMI) of Bosnia and Herzegovina**, an Agency responsible for hydrological and meteorological data collection, processing and dissemination. Before the war in 1992, FHMI maintained network of 500 well-functioning rainfall stations while today, less than 100 stations remain operational. There is an urgent need to explore solutions to increase the spatial density of monitored rainfall, while remaining conscious of the installation (CAPEX) cost.

Through collection and processing of video footages into instantaneous rainfall intensities, the project enables FHMI to use widely-available CCTV footage in order to better manage local floods, help transportation authorities to improve road safety, farmers to better manage their crops and energy authorities to manage production of hydro power and plan maintenance of energy installations.

Image below indicates accuracy and advantages of the advanced AI-based computer vision technology developed by H2i (in red) compared against more traditional rainfall gauge observations (in blue).



The final project workshop held on December 8th with representatives of Aquaprocon, H2i Balkans and H2i Singapore presented the project results to FHMI. The main project outcomes are as follows:

- ✓ One new rainfall monitoring station and 3 CCTV cameras were installed and handed over to FHMI for further use;
- ✓ The CCTV video footage recorded in Sarajevo and Tuzla were analysed using the Instantaneous Rainfall Rate algorithm and compared against the rain gauge recordings;
- ✓ The innovative technology and a new approach of measuring rainfall intensity in real-world conditions based on video feeds acquired by the CCTV cameras was presented to FHMI staff;
- ✓ FHMI staff was provided training on use of cameras, configuration, coding and running the scripts.

FHMI and project teams are most satisfied by the project outcome which may prove a game-changing approach to the real-time rainfall monitoring.