



AUTONOMOUS ROAD SURFACE MONITORING AND REPAIR SYSTEM

Problem

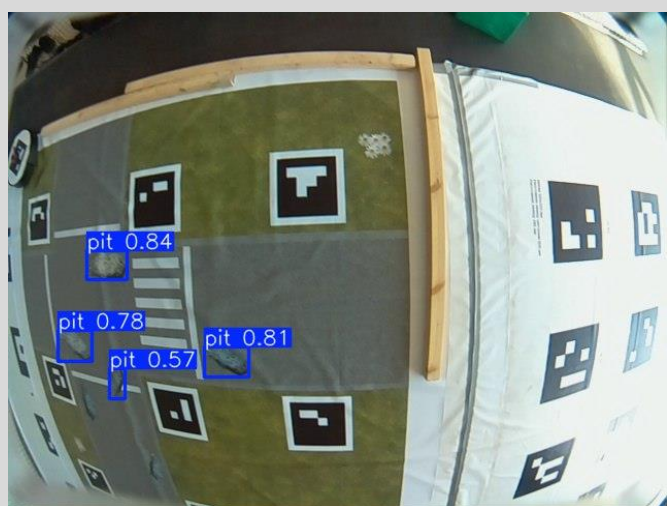
The poor condition of the roadway increases the likelihood of an accident and reduces traffic safety.

Purpose

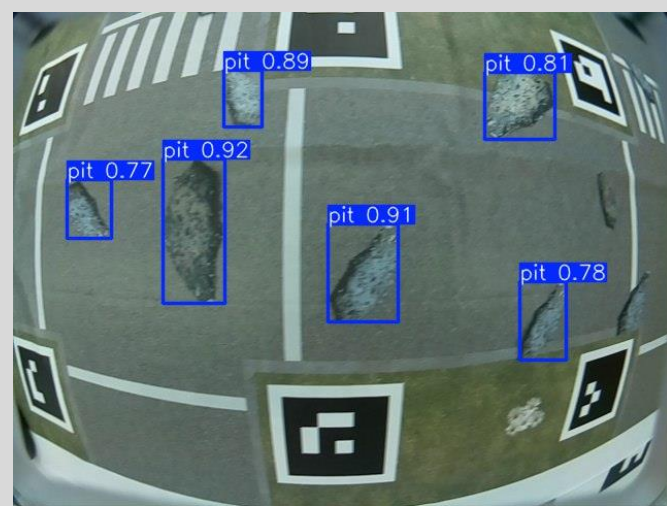
Create an autonomous system that will allow you to monitor the roadway using a drone and repair detected defects with an autonomous rover.



Working with a neural network



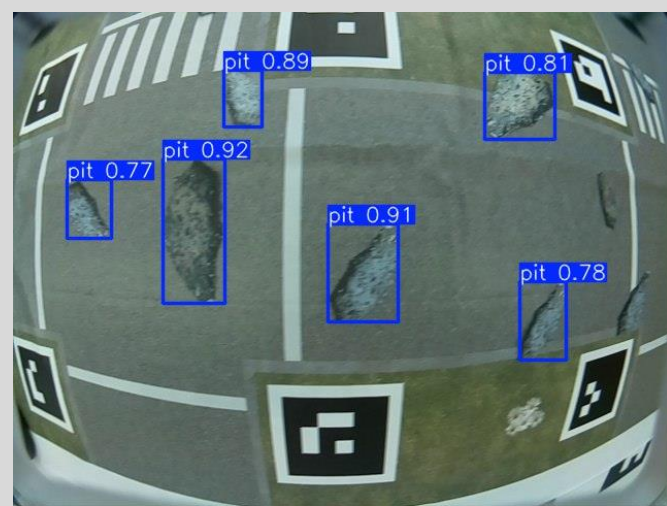
The work of the neural network



The work of the neural network



Test site



The algorithm of operation



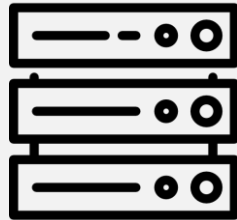
Performs an autonomous flyby and photographing of the road



Transfer of information to road services



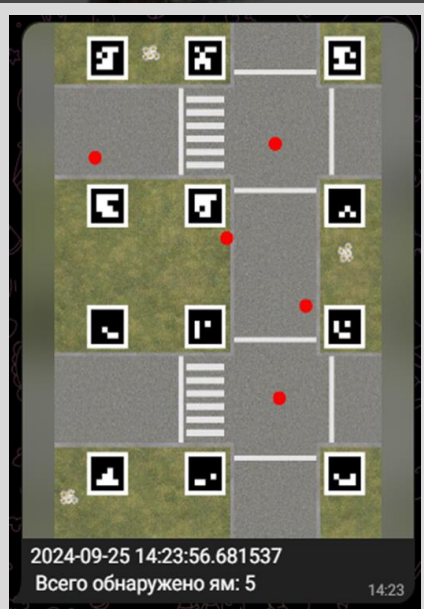
Wi-Fi



The server processes the image with a neural network, creates a damage map for the rover



Working with the results



Example output

According to the data from the neural network, the coordinates of the pits are calculated. A pit map is built using the coordinates obtained, the map is sent to road services via telegram, and a route for the rover is built using it.



Telegram bot



Economic justification

System element	Cost
Autonomous drone	2500\$
Autonomous asphalt paver rover	30000\$
Server hardware	550\$
Drone maintenance equipment	600\$
Rover maintenance equipment	1200\$
Total:	34850\$

Approximate cost of project implementation

Target users of the project - road services



Executive Summary

Problem

Roadway defects affect traffic safety

Purpose

Establish an autonomous pothole detection and repair system

Work algorithm

The drone takes a picture of the road, sends it to the server, the server identifies pits and sends it to the road services via telegram bot

