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Imaging Technique for Determining Pavement Macrotexture

Researchers at Purdue University have developed a computer program for detecting macrotexture of pavement. To improve road safety for travelers, properties of pavement such as surface roughness, friction, and aggregation loss should be optimized. Current methods for testing pavement during construction include sand patch which does not account for road debris, outflow of water which is slow and also limited in use to non-porous surfaces, and finally laser measuring, which cannot distinguish between old and new road cracks. The Purdue University approach asks users to take multiple photographs of a surface using a mobile application and then rapidly renders a 3D model. Algorithms in the mobile application analyze surface roughness through a root mean square height calculation, distinguish between different types of pavement using mean profile depth, and predict future aggregation loss. Researchers were able to obtain seven hundred and ninety images at twenty-five unique sites on Indiana Department of Transportation (INDOT) roads and test sites for verification. This convenient, easily reproducible solution can also be beneficial to a variety of civil and materials engineering projects.

Advantages

-High-Speed Detection

-Repeatability

-Accuracy

-User-friendly

Applications

-Construction Management

-Civil Engineering

Technology ID

2020-TIAN-68884

Category

All products

Artificial Intelligence & Machine Learning/Computer Vision & Image Recognition

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