

Design and Development of Multipurpose Measurement Wheel for Road Data Collections and Analysis

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A novel multifunctional measuring wheel is proposed and developed to replace the measuring wheel currently used for distance measurement. The main objective was to move away from the traditional method and capture all the data at once, as the measuring wheel currently in use only obtains primitive distance information. Getting decent accuracy is the main objective. Thus, encoders are introduced to increase the measurement accuracy. RTK-GPS technology is used to obtain the location information and it was equipped with two antennas to improve the connectivity. Further, camera arrangement is embedded to obtain pictures of the instances while taking the relevant distance measurements along the route. The display unit is attached to the system and able to view the data during the run. Software application for processing the simultaneous perceptions from the system and storing the data is built. Moreover, data representing the pre and post development formats of the roads can be retrieved and uploaded simultaneously through the relevant sub-office to the main office of interest. The proposed system is capable of achieving precise and accurate data and analysing them simultaneously through the developed software application. This allows users to make the right decisions in a short period, reduce labour and hence lower the cost by enabling the ability to capture required data simultaneously.

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