

DESIGN OF POWER GENERATOR ON SLEEPING POLICIES AS PARKING AREA LIGHTING BASED ON IoT

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ABSTRACT

Indonesia has abundant potential for new and renewable energy, such as renewable energy that has not been thought of before by using speed bumps that utilize pressure from motor vehicles. Speed bumps use generators as power generators, so that the function of speed bumps is not only used as speed reducers but can also be used as power generators. Speed bumps can be placed in office buildings and malls, vehicles that will enter or exit the mall will step on pads (bumps) connected to levers and springs, gear boxes, which are connected to the generator shaft. As a result, the generator rotation can produce electrical energy. The output power on the generator is stored in the battery which then the stored electrical power can be used to light the parking area of the mall and building, by using a lever system as a means of converting mechanical energy into electrical energy by utilizing vehicle pressure on the pads (bumps) and equipped with LDR sensors that function as automatic switches based on sunlight. This study uses a voltage sensor used as battery monitoring. The results of testing the power generator system after being passed by a vehicle produced an average of 12.98 V, so to reach 12v it takes 2,760 times. Battery usage with a 5watt load can be used for 15.38 hours. The voltage sensor on the system with a comparison of measurements using a multimeter and Arduino IDE serial measurements has an average error of 2.941%. The Blynk application on the system with a comparison of measurements from the Arduino IDE serial with the blynk application has an average error of 0.01%. The Arduino-based monitoring system and the blynk application can be realized with a success rate of 100%.

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