

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202311061685 A

(19) INDIA

(22) Date of filing of Application :13/09/2023

(43) Publication Date : 13/10/2023

(54) Title of the invention : PIEZOELECTRIC CHARGED LED INDICATORS OF BICYCLE

(51) International classification :H02N0002180000, B62J0001000000, H01L0041113000, B62J0001080000, H04N0005232000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present disclosure addresses a bicycle safety and sustainability challenges. The invention harnesses piezoelectric energy harvesting to power bright LED indicators (120) on a bicycle (400), significantly enhancing rider visibility to other road users during low-light conditions and adverse weather. The invention includes a piezoelectric transducer 110, which is fitted in a cylindrical rod of the bicycle seat assembly. During the riding of the bicycle (400) the force generated due to the rider body weight is transferred to the piezoelectric transducer (110) using a double helical silicon spring (108) attached in the seat assembly. This result in electric voltage generation proportional to the load (102) applied. The voltage produced is used for charging a battery (114) using a step up amplifier unit (112) resulting in the glow of the LED indicators (120).

No. of Pages : 22 No. of Claims : 6