

### ***Abstract***

*Bicycle is one of the most popular transportation in the world because its emission free, also can be used for all faction and all ages. Bicycle always developing according to latest technology, various designs have emerged to change the shape of the bicycle to the present. The design is important in making new concepts to overcome existing problems. The design of a bicycle transmission sistem without a chain intend to overcome the problems of a bicycle with a chain in its maintenance. The design of the bicycle chain transmission sistem was changed using a four linkages mechanism, two types of models were made using the same principle. These two types of bicycle sistem designs use a four linkages connecting mechanism and sistem motion simulation created using Fusion 360. Motion simulation of this sistem shows that bicycle transmission without chain work properly. The two types of designs will be compared based on the force needed to move the bike and the results of the simulation.*

***Keyword:*** *Bicycle without chain, four linkages mechanism, Fusion 360*