

## TRIZ를 이용한 자전거용 변속장치의 개발에 대한 연구

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### A Study on the Development of a Transmission for Bicycles by TRIZ

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**Key Words:** TRIZ(발명적 문제해결 이론), Transmission(변속장치), Engineering Design(공학설계)

**Abstract :** This paper represents a study on the development of the conceptual design for the bicycle transmission by TRIZ. At first the problems of the transmissions of the commercial bicycles was analyzed. And its development object was defined in connection with the improvement direction. The developed conceptual design was compared with the registered patents and practical new devices at the Korea Industrial Property Office. The Comparison shows the developed conceptual design is on the same level with the above mentioned, and the usefulness of TRIZ methodology.

## 보병 전투원 능력 향상을 위한 외골격 메카니즘 설계

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### Exoskeleton Design for Solider Enhancement Mechanism

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**Key Words:** Reciprocal relation(역관계), Spherical 4-bar mechanism(구형4절기구)

**Abstract :** This paper proposes a new design of a spherical 4-bar mechanism which is capable of supporting a weight of human body with some additional load. With the help of this mechanism, one may carry more loads and walk longer comparing to those without this mechanism. The proposed mechanism compose of 2-DOF(1 DOF for legs, 1 DOF for waist). The mechanism has been designed to produce repeating motion of a leg and translating motion of a waist. Utilizing the concept of reciprocity of screws, the design has been optimized to minimize the supporting power of the load. It has been also demonstrated that the mechanism is dynamically balanced.