Paper ID	T1-P02
Title	**Hybrid Antiwindup-Fuzzy Logic Control for an Underactuated Robot Leg Precision Motion**
Authors	**Wan Mohd Nafis Wan Lezaini, Addie Irawan, Akhtar Razul Razali and Abdul Hamid Adom**

Abstract:

Legged robot is the best example of bio-inspired robot. One of the challenging areas in developing this type of robot is control architecture, especially in position control. As the number of legs and its joints is increased, the requirements of robust position control become more demanding as legged robot requires coordination so that it can move in the desired pattern while walking. The demands increases when the legs are in under actuated configuration. This paper presents a hybrid Proportional Integral with antiwindup algorithm and Fuzzy Logic Control (PIA-FLC) as joint position control for underactuated robot leg. The PIA-FLC is experimented on the joints of Hexaquad's leg and is then compared with that using a PIA controller and a FLC controller. The results show that PIA-FLC performs better than the PIA and FLC controllers as the hybrid controller response faster and is able to follow the reference motion with small overshoot and time delay error.