[Claims]

Claim 1:
A walking control device for a legged mobile robot comprising an upper body and a plurality of leg portions connected thereto via joints, comprising:
(a) a detection means for measuring the floor reaction force acting on the robot and detecting the actual ZMP (Zero Moment Point) position as the point of application thereof;
(b) a ZMP deviation calculation means for comparing the detected actual ZMP position with a target ZMP position and obtaining the deviation therebetween as a first deviation;
(c) a detection means for detecting the inclination angle and/or angular velocity of the upper body;
(d) an inclination deviation calculation means for comparing the detected inclination angle and/or angular velocity of the upper body with a command value and obtaining the deviation therebetween as a second deviation;
and wherein, at least one joint of the plurality of leg portions is driven such that the first and second deviations are reduced.

Claim 2:
A walking control device for a legged mobile robot comprising an upper body and a plurality of leg portions connected thereto via joints, comprising:
(a) a target gait generation means for generating a target posture of the robot;
(b) a detection means for measuring the floor reaction force acting on the robot and detecting the actual ZMP position as the point of application thereof;
(c) a ZMP deviation calculation means for comparing the detected actual ZMP position with a target ZMP position and obtaining the deviation therebetween as a first deviation;
(d) a detection means for detecting the inclination angle and/or angular velocity of the upper body;
(e) an inclination deviation calculation means for comparing the detected inclination angle and/or angular velocity of the upper body with a command value and obtaining the deviation therebetween as a second deviation;
(f) a target posture correction means for correcting the target posture in accordance with the obtained first and second deviations;
wherein the target posture correction means causes joint displacement of the robot to follow the corrected target posture, thereby generating stress due to elastic deformation of the leg portions, so that the obtained first and second deviations are reduced.

Claim 3:
A walking control device for a legged mobile robot comprising an upper body and a plurality of leg portions connected thereto via joints, comprising:
(a) a target gait generation means for generating a target posture of the robot;
(b) a floor reaction moment detection means for detecting the floor reaction force moment around a predetermined reference point acting on the robot;
(c) a floor reaction moment deviation calculation means for comparing the detected floor reaction moment with a target floor reaction moment and obtaining the deviation therebetween as a first deviation;
(d) a detection means for detecting the inclination angle and/or angular velocity of the upper body;
(e) an inclination deviation calculation means for comparing the detected inclination angle and/or angular velocity of the upper body with a command value and obtaining the deviation therebetween as a second deviation;
(f) a target posture correction means for correcting the target posture in accordance with the obtained first and second deviations;
wherein the target posture correction means causes joint displacement of the robot to follow the corrected target posture, thereby generating stress due to elastic deformation of the leg portions, so that the obtained first and second deviations are reduced.

Claim 4:
The walking control device for a legged mobile robot according to claim 2 or 3, wherein the target posture correction means corrects the target posture in proportion to the obtained first and second deviations.

Claim 5:
The walking control device for a legged mobile robot according to claim 3 or 4, wherein the predetermined reference point is the target ZMP position.

Claim 6:
The walking control device for a legged mobile robot according to any one of claims 2 to 5, wherein the target posture correction means corrects the target posture by modifying the target position and/or posture of the tip of at least one of the leg portions.

Claim 7:
The walking control device for a legged mobile robot according to claim 6, wherein the target

posture correction means performs the correction by moving the target position and/or posture of the tip of the leg portion in the vertical axis direction.

Claim 8:
The walking control device for a legged mobile robot according to claim 6, wherein the target posture correction means corrects the target posture by assuming a posture as if the floor were tilted, without changing the relative position of the tip of the leg portion with respect to the floor.

Claim 9:
The walking control device for a legged mobile robot according to claim 8, wherein the rotation center when the floor is tilted is set to the target ZMP position or a predetermined reference point.

Claim 10:
The walking control device for a legged mobile robot according to claim 9, wherein the target posture correction means corrects the posture such that the rotation angle of the tip of the leg portion on the side farther from the rotation center is smaller than that of the leg portion tip on the nearer side.

Claim 11:
The walking control device for a legged mobile robot according to any one of claims 2 to 10, wherein the target posture correction means corrects the target position and/or posture of the leg portion tip while maintaining the position and/or posture of the upper body within the target posture.

Claim 12:
The walking control device for a legged mobile robot according to any one of claims 1 to 11, wherein a filter that attenuates high-frequency components of the det