[Claims]

Claim 1:

In a walking control apparatus for a legged mobile robot comprising a plurality of legs,

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,

b. a deviation calculation means for comparing the detected actual ZMP position with a target ZMP position and calculating the deviation therebetween,

wherein the walking control apparatus is configured to drive joints of at least one of the plurality of legs so that the actual ZMP position coincides with the target ZMP position based on the calculated deviation.

Claim 2:

In a walking control apparatus for a legged mobile robot comprising an upper body and a plurality of legs connected thereto via joints,

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,

c. a deviation calculation means for comparing the detected actual ZMP position with a target ZMP position and calculating the deviation, and

d. a target posture correction means for correcting the target posture based on the calculated deviation,

wherein the target posture correction means causes joint displacements of the robot to follow the corrected target posture, thereby generating stress through elastic deformation of the legs so that the calculated deviation is reduced.

Claim 3:

In a walking control apparatus for a legged mobile robot comprising an upper body and a plurality of legs connected thereto via joints,

a. a target gait generation means for generating a target posture of the robot,

b. a floor reaction force moment detection means for detecting a floor reaction force moment about a predetermined reference point acting on the robot,

c. a deviation calculation means for comparing the detected floor reaction force moment with a target floor reaction force moment and calculating the deviation, and

d. a target posture correction means for correcting the target posture based on the calculated deviation,

wherein the target posture correction means causes joint displacements of the robot to follow the corrected target posture, thereby generating stress through elastic deformation of the legs so that the calculated deviation is reduced.

Claim 4:

The walking control apparatus 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 calculated deviation.

Claim 5:

The walking control apparatus 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 apparatus 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 a target position and/or posture of the distal end of at least one of the plurality of legs.

Claim 7:

The walking control apparatus for a legged mobile robot according to claim 6, wherein the target posture correction means modifies the target position and/or posture of the distal end of the leg by moving it in the vertical axis direction.

Claim 8:

The walking control apparatus for a legged mobile robot according to claim 6, wherein the target posture correction means corrects the target posture by virtually tilting the floor without changing the relative position of the distal end of the leg with respect to the floor.

Claim 9:

The walking control apparatus for a legged mobile robot according to claim 8, wherein the rotation center of the tilted floor is the target ZMP position or a predetermined reference point.

Claim 10:

The walking control apparatus for a legged mobile robot according to claim 9, wherein the target posture correction means modifies the rotation angle of the distal end of the leg located

farther from the rotation center to be smaller than that of the leg located closer to the rotation center.

Claim 11:

The walking control apparatus for a legged mobile robot according to any one of claims 6 to 10, wherein the target posture correction means modifies the target position and/or posture of the distal end of the leg while maintaining the position and/or posture of the upper body in the target posture.

Claim 12:

The walking control apparatus for a legged mobile robot according to any one of claims 1 to 11, wherein a filter for attenuating high-frequency components of the detected values is connected to the detection means.