



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

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Project Title <p align="center">Walk, Stop, and Stroll</p>

<p align="center">Abstract</p> <p>Objectives/Goals Can mechanical legs work and move without the use of electricity, rather the amount of energy supplied by the maneuvering of the lever by human hands? What type of soles would provide the most grips, or conduct the most friction, to prevent the legs from slipping while supporting weight?</p> <p>Methods/Materials 10_10cm springs8_3cm springs2_35cm wooden bars2_40cm wooden bars 1_26cm x 26cm board (wooden),25_2cm screws6_large rubber1 pair of rubber soles1 pair Dr. Sholl#s gel pads1 pair plastic soles2_12cm rods1_1kg weight1_500g weight1_700g weight1 roll oftape1_screwdriver1_pliars1_scissors3m of wire6_hinges 2_15.5cm x 7cm wooden board4_2m long thin rope1.</p> <p>Results left leg, the wood block for knee is slightly curved in, uneven when nailed block in (small) crack because not thick enough hinge on right for feet is closer to edge, unstable hinge, place protruding, first time change so that pieces of wood touch one another wood board on ,uneven first time one leg (left) bend inwards, hinge on top tiny holes because tried to staple springs inif legs are towards back, can stand if slightly forward, fall over left leg has more balance right leg slightly bent(hip)board slightly tipped forward to keep stableright leg slant outward to standcannot stand on one leg with one leg bent, fall over immediatelyfeet about 5cm apart left leg is closer in side the board(hip)right leg (hinge) on hip more agapefeet, slanted outward to standscrew loose on left (foot)can stand without distance between feet.</p> <p>Conclusions/Discussion Apparently, in my case, mechanical legs cannot work or move by using only energy produced by Homo sapiens# hands.the feet are too small to be able to support the weight above it. The springs that are used were too coiled together causing it to pull in which makes the legs unable to stand upright.Adding the block of wood in between the #femur# and #tibia# prevented the #kneecap# to bend backwards. Also the board that connected the two legs and acted as a #hip# were connected by hinges so that every time the legs move the weight would thrust forward.Also, the ankle or heel part was held together by a hinge making the feet swing to nearly 180 degrees with every step to change that I made the tibia touch the feet completely and that made the legs too stiff and unable to balance. The springs were too tightly coiled which only made the legs bend and not straighten.There is also no center of mass for the legs.</p>

Summary Statement How mechanical legs can work without using electricity and use energy supplied through human hands.

Help Received Father_cutting wood, Chris,Bryan, Brandon, Alan (home depot), Thy_taking pictures
