Robotic System for Diagnosing Limp in Human Legs

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Introduction: Diagnosing limp involves a lot of medical errors and there is a lot of reports that support this problem : 1-In china 24,000,000 people suffer from limb because medical errors. 2-4% of children who visit hospital emergency departments suffer from limp in 2 – 6 years after diagnosing. 3-limp diagnosing needs experience more than studying. Research outcomes : A device that can diagnose limp to solve the diagnostic approach that involves: 1-Ruling out potentially serious causes. 2-Diagnosing limp quickly to avoid serious Complications of limp in the future. 3- Making a difference in treatment different kinds of limp. Abstract: Our device measures the angles and muscles vibration while human is walking in 6 parts in the human legs so it can make a vision about walking even our device can compare the movement in each of right and left legs and determines the problem more and more, the device is using a formula that is usually used in testing robotic legs(after transforming the human movement to robotic movement) ,the device determines if the legs is walking right or not (balancing and Symmetry in both legs(human)). In our project we used Arduino connected to 6 accelerometer sensors to take angles in 3 points in each of right and left leg with radio connection to a doctor base, at first we used only this circuit but it has a lot of errors so we need to use a formula, in human walking formulas there is many variables that cannot be measured from human so we used robotic legs to copy and simplify the movement and take variables from robotic movement as a replacement.

Awards Won: