

ABSTRACT

Continuous Passive Motion Knee and Heel is a tool that can help the movement of the joints - especially the knee joints (knee), and ankles (heel) is injured or broken bones. Working principles and tools Heel Knee CPM is the motor up down with the angle that is set up according to patient needs. Patient can do this appliance by itself and or constructively operator by doing election of therapy continued with election of time and angle according to requirement of patient. The tool is usually used in FisioTeraphy space that can help the movement of joints in the knee joint and ankle passively.

If the joints affected the movement of the human body can not be done optimally, causing complaints among patients complaining of stiffness in the joint stiffness, pain after post-surgery, but existing instruments deemed less than optimal because the tool is the only therapy on knee.

This tool uses a controller AT89s51 microcontroller and using a potentiometer (Vr) as an angle sensor. CPM will help the movement of passive joints, especially on the knees, and the author also wanted to add movement of the ankles or heels . CPM-making in the development if we are setting the timer 15 minutes then the instrument will move up and down for corners and a long time has been set up.

Arm motion in the knee joint (knee) is motion in one direction only with the movement of the motor 9 phase 10 ° , 20 ° , 30 ° , 40 ° , 50 ° , 60 ° , 70 ° , 80 ° , 90 ° . The movement of joints in ankle (heel) is moving in one direction by motor movement is limited only 5 stages of 10 ° , 20 ° , 30 ° , 40 ° , 50 ° .Based on the results of data analysis and testing of the accuracy of the treatment time can be concluded that the uncertainty tool for knee and between 0.2 to heel for the analysis 0.9. While to result of angle analysis for the knee of heel and, uncertainty among 0.02 until 0.09.

After a process of making and literature studies, planning, testing, testing and data collection tool, it was found that the operation of the tool is easy for these operator. From result of the analysis hence can be concluded that this therapy appliance more effective from previous appliance.

Keywords: CPM, Knee, Heel, Sensorsudut (Vr), therapy of the ankles.