



Prototype Design, Production and Functioning of a Portable (Movable), Home-Type (Domestical) Hemodialysis Machine (Unit)

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At the present time, the hemodialysis is the treatment method mostly used and preferred for the treatment of chronic kidney failure and insufficiency. Through the use of the hemodialysis method, the blood taken by vascular access is treated and cleaned by means of the artificial kidney equipment which is called hemodialysis machine, then it is given back to the patient again. The hemodialysis patients are generally treated three times a week and between 4-8 hours as an average for each session at the treatment centers or at the hospitals. In order to survive their lives, the dialysis patients must attend regularly to those treatment centers or hospitals, therefore, it is almost nearly impossible to go for a travel, to stay in a different city or country for them, so their freedom of travel and residence is strictly restricted. Besides, if they are not travelled and they reside at home, an additional difficulty happens for them since they must continuously go and return to the treatment centers and hospitals. Because of those go-and-return between home and hospital, extra illnesses and complaints may occur since the body structure of the patient weakens and becomes open to the infections.

In any case, the life quality of the patient is reduced. By the help of the portable (movable), home-type (domestical) hemodialysis machine which I am planning and think out to design as a Project stage, the hemodialysis patients shall attain the freedom of travel and residence, when this kind of a machine is physically produced and realized. If the patients use this machine at their homes, they shall not be obliged to go-and-return the hospitals or treatment centers, they can treat themselves at their own residences. Thanks to this machine, they can save their times, they shall not get tired on the way, the other possible illnesses that may occur, after the treatment which may cause to weaken the body structure and may open them infections, are prevented. All these advantages shall increase the life quality of the patients. (Note: The required education and certification can be provided for the hemodialysis patients by the authorized treatment centers and hospitals in order to apply the hemodialysis by themselves at home.)

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