

# WATER CARRYING ROBOT

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## ABSTRACT

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Technologies of this era were just considered fictions back in the past several years. In these past several years, it has grown, multiplied, improved and evolved so advance. But, at the same time, it actually brings more pros than cons for our daily lives. With technologies nowadays, robotics is made to look so simple and able to replace human in certain advance tasks.

Water carrying robot main purposes is to pick up a container of water. At the same time, the water carrying robot will also carry the water container up a flight of steps (each step is  $>1/3$  of the robot height), place down this container and then pick up another container which also  $>75\%$  fill with water and go down the flight of steps and place it on the floor. The water carrying robot should be autonomous and that no water will be spill when the robot goes up and down the stairs.

The robot is mainly controlled by microcontrollers which is the PIC16F877A. The DC motors and servo motors that were used for forward and backward movement are being controlled by a Quadruplet H-Drivers chip (L293D). A linear actuator is controlled by microcontroller used to move up and down the robot vertically. Infra-red sensors were used for detection purposes on different area. Lastly, the robot is able to balance a container which full of water, up and down a flight of 4 steps and able to carry up and drop down the container. The hardware design of the robot is the most challenging part to this project. The robot design was be done carefully to able the robot move up a several steps and prevent the robot from falling. Software programming was done to collaborate with the hardware. They will be elaborated in further chapters in the report.