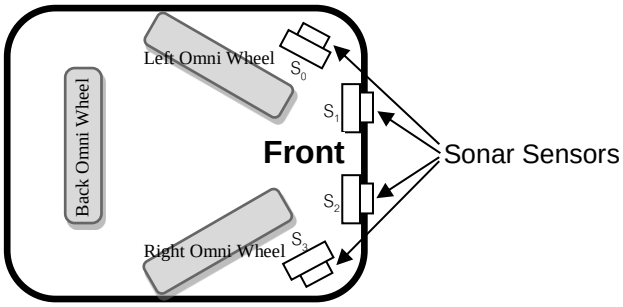
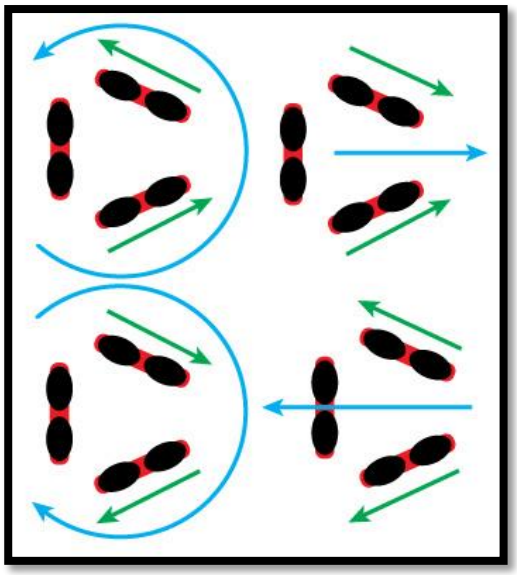
Name ..... Student ID..... Year.....

KING MONGKUT'S UNIVERSITY OF TECHNOLOGY THONBURI

CPE 376 Intelligent Robot Programming **Engineering Students**

<u>Please design a fuzzy control system in detail</u> this system is used for controlling the movements of *a mobile robot with three Omni wheels* as shown in a picture below.





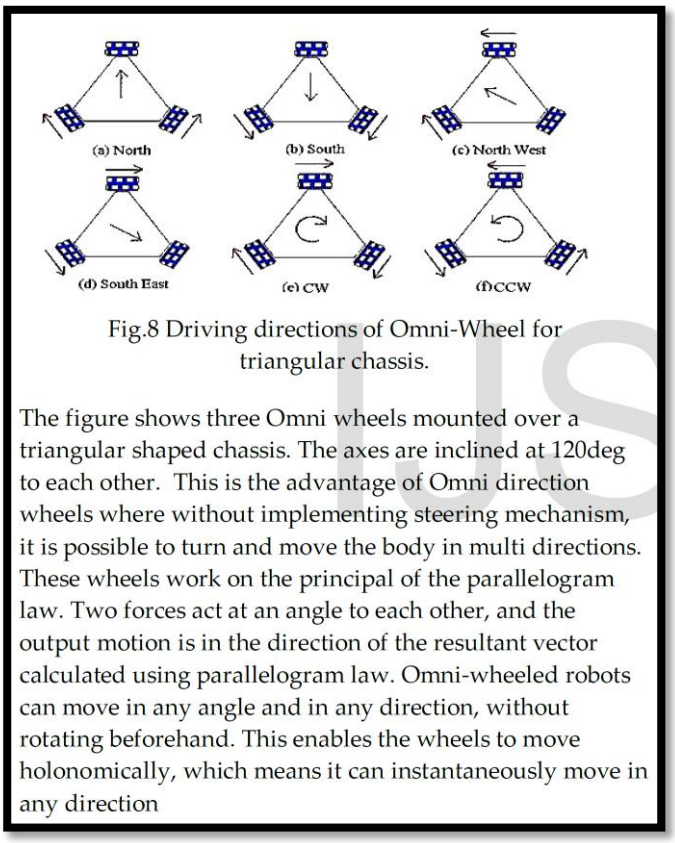


Fig.8 Driving directions of Omni-Wheel for triangular chassis.

The figure shows three Omni wheels mounted over a triangular shaped chassis. The axes are inclined at 120deg to each other. This is the advantage of Omni direction wheels where without implementing steering mechanism, it is possible to turn and move the body in multi directions. These wheels work on the principal of the parallelogram law. Two forces act at an angle to each other, and the output motion is in the direction of the resultant vector calculated using parallelogram law. Omni-wheeled robots can move in any angle and in any direction, without rotating beforehand. This enables the wheels to move holonomically, which means it can instantaneously move in any direction

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The main task is very simple.

“Let the robot explores its environment and does not allow the robot to hit any objects.”

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