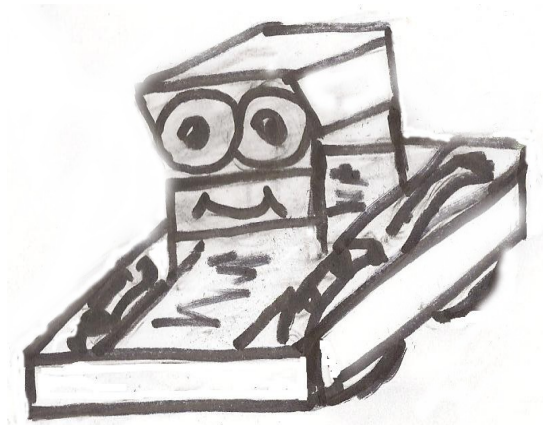


## Holonomic Drive



Holonomic systems This type of system uses wheels with rollers on them and by placing the rollers at an angle to each other and powering each wheel with a motor, the force vectors between wheels can be changed. This allows the robot to move in 2 different planes and rotate. The two types of roller wheels used for this purpose are the omni directional wheels (sample [P/N: 276-2185](#)) and the mecanum wheels ([P/N: 276-1447](#)). The omni wheels are usually placed on the corners of the robot frame with the wheels placed at 45° to the corner. The mecanum wheels achieve the same action by the rollers set at 45° so the wheels can be in line with the robot frame. Special care must be used in placing the mecanum wheels so the rollers are in opposition to one another. (A.K.A. X holonomic)



## Pros

- can move in 2 different planes (front to back and side to side), plus pivot
- very hard to trap in a corner
- very effective for lining up with game pieces
- there is a holonomic joystick block for ease of programming in EasyC V4

## Cons

- requires a motor for each drive wheel
- because the force vectors are always in different directions, the resultant force vector of the motors is never equal to the summation of the forces.
- easily pushed from any direction that is not being powered
- longer time may be required for driver training and driving the orientation of robot can sometimes be challenging
- multiple motors draw more current and use up motor ports on controller
- does not climb field obstacles well

Special note: another popular variation to the holonomic system is to orientate the omni wheels at 90° to one another. (A.K.A. H holonomic)

