Development of Leader Follower Robot

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This paper discusses the development of a leader follower robot based on visual tracking. In leader follower approach, one robot acts as a leader whose motion defines the path for the follower robots. The entire follower robots use the path defined by the leader to achieve a defined task or to attain a certain goal. The advancement of the technology of video acquisition has made devices better and cost-effective. Thereby, many applications those will effectively utilize digital video can be identified. Compared to still images, video sequences provide more information about how objects and scenarios change over time. The strategy copes with the tracking and following of a single object in a sequence of frames and the co-ordinate of the object can be determined. The object tracking video is recorded using a wireless camera and then transmitted into a computer. Then using the software artifact named 'Roborealm', the video is processed and analysed, hence the object can be detected and coordinates of the detected object is calculated. The object is tracked by plotting a square bounding box around it in each frame. Co-ordinates of the centroid of that bounding box is determined and those coordinates are used for an algorithm which was specifically developed for the motion control of the follower robot. Then the commands related to the motion of the leader robot are transmitted to the follower robot enabling it to follow the leader robot.

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