



A HIGHLY DISTRIBUTED CONVEYOR : VIRTUAL VEHICLE

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Under this research ,we propose a novel material handling system .It has better potential ,performance and flexibility than conventional conveyors (belt conveyor ,robot manipulator show in figure 1).

Most industrial plants will be changed to flexible manufacturing systems .Such systems require working equipment for manipulating parcel among several machines in arbitrary orders .New expected conveying system must be able to move parcels with translation and rotation in plane .

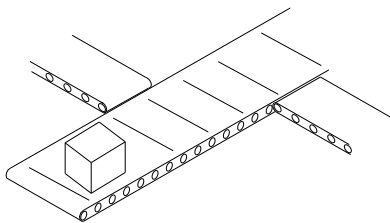


Figure 1 Conventional Conveyor

At FIBO ,we are in a process of building similar systems consisting of small actuators or active cells. These cells lay in a working array that is fixed to a planar surface (figure 2).Each cell has private controllers that communicates with neighbors to simultaneously achieve aims .Motion characteristics look like flocking pattern of birds flying using simple rules between

independent agents reaching their surroundings

Our plan as follow

- 1.Study the kinematics of parcel manipulation in 2-D planes.
2. Design a distributed controller
3. Design mechanical components .
4. Experiment : manipulating two parcels in 2-D planes.

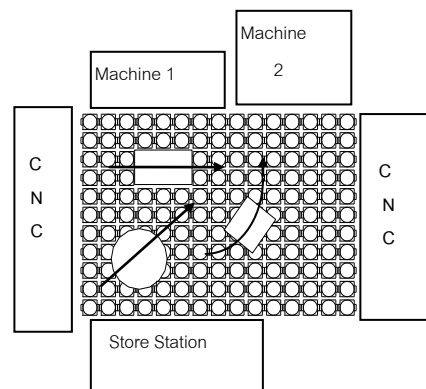


Figure 2 Virtual Vehicle Work Space