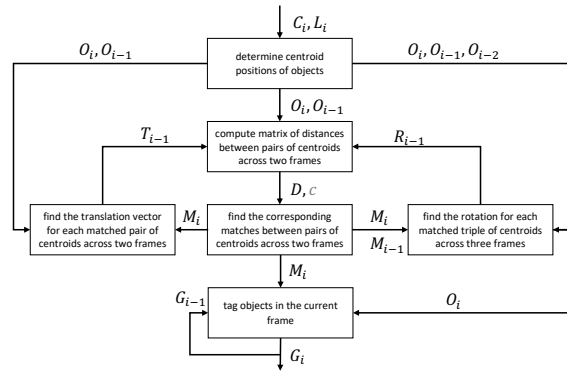


Block Diagram Notations:

- $C_i \rightarrow$ Spot centroids for the i^{th} frame.
- $L_i \rightarrow$ Label of the spots in the i^{th} frame. Each label could be 'Object', 'Star', or 'Unknown'.
- $O_i \rightarrow$ Object centroids for the i^{th} frame.
- $D \rightarrow$ Distance matrix. $D_{p,q} \rightarrow$ Euclidean distance between the p^{th} object centroid in the previous frame with q^{th} object centroid of current frame.
- $c \rightarrow$ Cost value selected for no matching found.
- $M_i \rightarrow$ Matches contains (p, q) pairs such that p^{th} object centroid in the previous frame is matched with the q^{th} object centroid in the current frame.
- $T_i \rightarrow$ Translation vectors calculated for the i^{th} frame. For each matched pair, there is a translation vector defined from the object centroid in the previous frame to the matched object centroid in the current frame.
- $R_i \rightarrow$ Rotations calculated for the i^{th} frame. For each matched triple in three consecutive frames, there is a rotation defined from the object centroid in the previous frame to the matched object centroid in the current frame.
- $G_i \rightarrow$ Tag of the objects in the i^{th} frame.

(a)



(b)