A delivery person must leave the central location of the business, deliver packages at a number of addresses, and then return. Naturally, he/she wishes to reduce costs by finding the most efficient route. This motivates the following: Given a set of $k$ distinct vertices $S = \{x_1, x_2, \ldots, x_k\}$ in a simple graph $G$, the closed $k$-stop-distance of set $S$ is defined to be

$$d_k(S) = \min_{\theta \in \mathcal{P}(S)} \left( d(\theta(x_1), \theta(x_2)) + d(\theta(x_2), \theta(x_3)) + \ldots + d(\theta(x_k), \theta(x_1)) \right),$$

where $\mathcal{P}(S)$ is the set of all permutations of $S$. The closed 2-stop distance is twice the standard distance between two vertices. We study the closed $k$-stop center and closed $k$-stop periphery of a graph, for $k = 3$. (Received September 20, 2011)