Abstract: Cooperative swarms of robots equipped with cameras are robust against failures, and can explore GNSS (Global Navigation Satellite System)-denied environments efficiently. VSLAM (Visual Simultaneous Localization and Mapping) techniques have been developed in recent years to estimate the trajectory of vehicles and to simultaneously reconstruct the map of the environment using visual clues. Due to constraints on payload size, weight, and costs, many VSLAM applications must be based on a single camera. The associated monocular estimation of the trajectory and map is ambiguous by a scale factor. This work shows that by exploiting sparse range measurements between a pair of dynamic rovers in planar motion, the correct scale factors of both cameras and the relative position, as well as the relative attitude between the rovers, can be estimated.