We consider the problem of optimizing a Lipshitzian function. The branch and bound technique is a well-known solution method, and the key components for this are the subdivision scheme, the bound calculation scheme, and the initialization. For Lipschitzian optimization, the bound calculations are based on the sampling of function values.

We propose a branch and bound algorithm based on regular simplexes. Initially, the domain in question is covered with regular simplexes, and our subdivision scheme maintains this property. The bound calculation becomes both simple and efficient, and we describe two schemes for sampling points of the function: midpoint sampling and vertex sampling.

The convergence of the algorithm is proved, and numerical results are presented for the two dimensional case, for which also a special initial covering is presented. (C) 2002 Elsevier Science Ltd. All rights reserved.