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## **Blast Hole Rock Cuttings analysis: Design and Implementation of an open Architecture LIBS System**

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This paper presents the development and implementation of a LIBS (Laser-Induced Breakdown Spectroscopy) system based on a robotic arm for fast chemical characterization of blast hole rock cuttings in open pit mining. The system is designed with an open architecture, allowing for the easy integration of additional sensors such as a spectrophotometer and a magnetic susceptibility meter. The use of the LIBS system significantly reduces the time required to characterize the raw material and obtain a broader characterization, including geological characterization. The preliminary results of this development demonstrate the potential of the LIBS system in improving the efficiency and accuracy of rock characterization in open pit mining operations.