



*Proceedings of Iran International Aluminium Conference (IIAC2018)
April 24-25, 2018, Tehran, I.R. Iran*

Fives Embedded Service Robot, one more step towards the single-man PTM

Iann Amram, Jean-Paul Leroy*

Fives ECL, 100 Rue Chalant, 59790 Ronchin, France

Abstract: Technical innovations have seen a tremendous acceleration in the last decade. New technologies keep coming out and find applications in many parts of our lives. Artificial Intelligence, Blockchain, Virtual and Augmented Realities to name a few, are shaping our world, everyday a little bit more. The primary aluminum world is not immune to the impact of those new technologies, and in its way, at its own pace, it will integrate some of them eventually. Robotics is not a recent technology but it is definitely a mature technology used in many industrial applications for decades. Today robotics is making its way into the world of primary aluminum smelters where reliability and safety are of the utmost importance due to the dangerous environment. Robotics brings benefits such as reduction of operating expenditures, increase of productivity and improvement of the safety and health of the operator. In the potline, some manual and dangerous tasks still need to be carried out by a floor operator, including the handling of pot hoods during anode changing. The Embedded Service Robot (ESR) developed by Fives is a tool to be added to the Pot Tending Machine (PTM) and designed to handle the pot hoods following an automatic sequence. The ESR therefore eliminates the risk of injury for the operator who now handles the hoods manually. The handling of the pot hoods is the main function of the ESR but the ESR can also perform other tasks like the sweeping of the dust at the pot bottom area, and some other functions that are still under development such as the brushing of the anodic beam for better electrical contact for example.

Keywords: Robotics, Automation, PTM (Pot Tending Machine), ESR (Embedded Service Robot), single-man PTM