

MARCHESE project –Remote Monitoring of Health Parameters

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Intelligent robotic systems are becoming essential for space applications, medical applications, industries, nuclear plants, and for harsh environments in general, such as the CERN particles accelerator complex and experiments. Nowadays, mechatronic systems use mature technologies that allow their robust and safe use, even in collaboration with human workers. Specific for complex and hazardous environment, vital signals monitoring is expected to support people in their daily activities in the near future, following continuous strides in developing health technologies. As the industry 4.0 revolution grows, robotic systems are increasingly deployed to support health monitoring, like for example in search and rescue scenarios for disaster areas. This presentation introduces contactless human health monitoring methods explored using photoplethysmography methods and machine learning techniques. Experiments conducted on several people demonstrate that cardiac activity can be monitored from camera views to obtain non-invasive and reliable vital parameter measurements. This system could address several medical applications in the future to meet the required health and safety needs, also besides the CERN context.

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