Poka Yoke Software Design : A Case Study on "Software for Vicarious Calibration of Optical Earth Observation Sensors"

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Abstract

The total quality management (TQM) philosophy encompasses every facet of an organization to ensure "do it right the first time". Poka yoke or "mistake proofing" is a concept which helps in achieving "right first time, every time". The poka yoke has been successfully implemented in various hardware tools and components used in our daily life. Software, like any hardware tool, has also become a part of day-to- day activities like ecommerce and travel, just to name a few. Designing of any tool, hardware or software, developed by one for employing by the other, requires understanding of the user's perspective to ensure that the object is put only to intended use. Such interdependence in using a software tool mandates the implementation of poka yoke design in software development. Vicarious calibration procedure for Earth observation remote sensing system involves data from various sources and in various formats, which needs to be compiled and pre-processed before the analysis and generation of a calibration coefficient takes place. The vicarious calibration process also uses software utility for ensuring consistency and timeliness in delivery of results. This paper explores various elements of vicarious calibration software, which can be developed using poka yoke technique to ensure that such diverse data are pre-processed independently by members of the calibration team without making any unintended mistakes arising out of unintelligible software design implementation.

Keywords: vicarious calibration, Poka yoke, radiance

JEL Classification: C88, C93, L15, L86, M11, M15, M19

Paper Submission Date : July 12, 2014 ; Paper sent back for Revision : September 26 , 2014; Paper Acceptance Date : October 16, 2014