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SIZE ESTIMATION OF MACHINE VISION BASED RETAIL SELF-CHECKOUT SYSTEM SOFTWARE

A successful project accomplishment is a planned and systematic approach towards fulfilling all the requirements that do not exceed the estimated cost and scheduled deadline. This can be accomplished by estimating the size of a software system that will provide the precision of the project's complexity and value so that the project managers can precisely plan the resources, cost, and duration required to build the desired software.

This research aims to implement the Function Point Analysis (FPA) method in measuring the estimated size of a Deep Learning (DL) based retail self-checkout system that compares the object and the structural model based on the composition of activity, use-case, sequence and class diagram respectively. FPA is a standardized method aimed at establishing a software size measurement from its functional requirements, considering the features to be implemented in it. The requirement analysis of the software has been carefully conducted through use case analysis. Data Flow Diagram understands the information flow and retail business process. Sequence diagram illustrates how the process or components interact during its execution. Unified Modelling Language class diagram understands the structure of the machine vision based retail system which shows system's classes, their attributes, operations (or methods), and the relationships among objects and thus it directly helps to estimate the size of the software during planning stage.

To the best of our knowledge, there is no research work available in literature regarding machine vision based software size estimation. However, dramatic success of DL supports its industry adoption and deployment in near future. Proposed system will facilitate identifying the grocery products which do not have any barcode through image based object recognition model. This research has long lasting outcomes on proper planning of machine vision based software project for different project management methodologies.

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