Y. TURKAN, F. BOSCHÉ, C.T. HAAS, R. HAAS. **Automated earned value tracking.** *Gerontechnology 2012;11(2):335;* doi:10.4017/gt.2012.11.02.330.00 **Purpose** Efficient and effective construction progress tracking is critical to construction project management. Recent attempts to improve progress tracking have focused mainly on automation. Using technologies such as 3D-imaging[1,2],significant progress has been made. However, one limit of these approaches is the focus on counting objects[3] or milestones rather than value, and contractors typically state a clear preference for earned value tracking over design-object-oriented quantity tracking for buildings and industrial facilities. Therefore, in this paper, we propose an automated progress tracking system that transforms objects to their earned values. **Method** Our approach links an automated object recognition system[1,2] with project cost accounts to facilitate more objective and timely earned value analysis for automated progress tracking. The linking is performed manually for now, but it will be automated in future by linking the object recognition algorithms to BIM through IFC-files where all cost information can be encapsulated (*Figure 1*). **Results & Discussion** Experiments were conducted with data obtained from two different construction sites to test the system's performance for automated earned value tracking of volumetric work. Results are presented that demonstrate reasonably accurate, automated estimation of a project's structural erection progress in terms of earned value. The experimental results also demonstrate the necessity of ensuring that all objects that need to be tracked are present in the scans, i.e. the need for good planning of the scanning process. Current research is focused on planning-for-scanning and on automated earned value tracking for piping and HVAC-work.

References

1. Bosché F, Haas CT. Automated retrieval of 3D CAD model objects in construction range images. Automation in Construction 2008;17(4):499-512; doi:10.1016/j.autcon.2007.09.001
2. Bosché F, Haas CT, Akinci B. Performance of a new approach for automated 3D project performance tracking. Journal of Computing in Civil Engineering, Special Issue on 3D Visualization 2009;23(6):311-318
3. Turkan Y, Bosché F, Haas CT, Haas RG. Automated Progress Tracking Using 4D Models and 3D Sensing Technologies. Automation in Construction 2012;22:414-421; doi:10.1016/j.autcon.2011.10.003
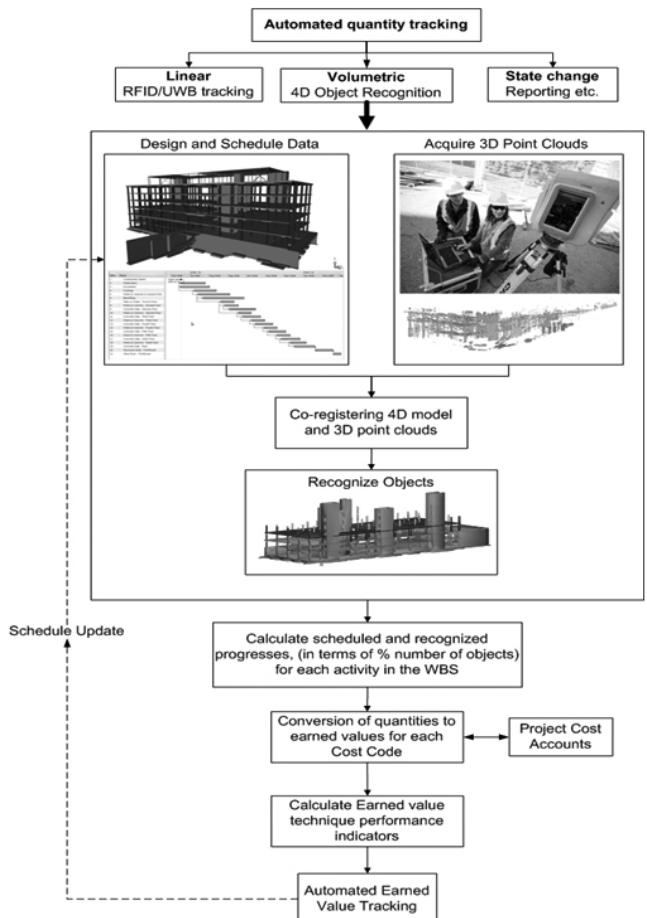
Figure 1. Conceptual view of the components of the system for Volumetric Progress Classes