

**Specification of Competency Standards**  
**for the Information & Communications Technology Industry**  
**Unit of Competency**

Functional Area - Operations Management

Title	Analyse camera data for graphic overlay in AR application
Code	107994L4
Description	This unit of competency applies to all Digital Media Technology (DMT) practitioners who are involved in the development of VR applications. Augmented reality (AR) involves overlaying computer graphics on a video stream of the real world, with is done by identifying unique AR patterns in the world and calculates their position with respect to the camera. This UoC concerns with the abilities in analysing camera data for graphic overlay in AR application, in the capacity of a developer.
Level	4
Credit	3
Competency	<p>Performance Requirements</p> <p>1. Knowledge for camera data for graphic overlay in AR application</p> <ul style="list-style-type: none"> <li>• Realize the philosophy and guidelines of the organisation towards AR application development</li> <li>• Master programming knowhow, concepts and techniques</li> <li>• Possess proficient programming skills in areas such as: <ul style="list-style-type: none"> <li>○ Authoring</li> <li>○ Engineering</li> <li>○ Quality testing, etc.</li> </ul> </li> <li>• Familiar with languages for AR application development, such as: <ul style="list-style-type: none"> <li>○ Objective-C</li> <li>○ Swift</li> <li>○ Java, SQL, PHP, ASP.net, JSP, etc.</li> </ul> </li> <li>• Experienced with but not limited to the following software: <ul style="list-style-type: none"> <li>○ Computer Vision</li> <li>○ AR</li> <li>○ Mobile HCI, etc.</li> </ul> </li> <li>• Keep abreast of the new developments and technological advancements in the ICT industry</li> </ul> <p>2. Analyse camera data for graphic overlay in AR application:</p> <ul style="list-style-type: none"> <li>• Work with the application development team to design a solution that meets the requirements of the AR application in concern</li> <li>• Create the prototype and develop aspects of AR technology within both desktop and mobile contexts</li> <li>• Use available VR/AR SDK for Windows to perform the followings: <ul style="list-style-type: none"> <li>○ Stereoscopic 3D video</li> <li>○ Head tracking</li> <li>○ Utilization of the AR camera data, etc.</li> </ul> </li> <li>• Collect required data by using AR cameras to: <ul style="list-style-type: none"> <li>○ Capture background images such as the relatively distant background objects over a relatively large field of view</li> <li>○ Foreground images which may be the images of an object being probed</li> <li>○ Obtain representations of areas ordinarily obstructed from view</li> <li>○ Measure surroundings, objects, or both surroundings and objects, etc.</li> </ul> </li> <li>• Use collected camera data for graphic overlay by performing tasks such as: <ul style="list-style-type: none"> <li>○ Threshold a captured image from a video source</li> <li>○ Identify all square and rectangular shapes in the image</li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>○ Examine the inner portion of the shape and compare it to preloaded bitmap files for unique identification</li> <li>○ Obtain a transformation matrix for each pattern and proceed to overlay computer graphics on the screen</li> <li>○ Perform subject identification and accurate distancing and target tracking by the unique transformation matrices between the patterns and the camera, etc.</li> </ul> <ul style="list-style-type: none"> <li>● Conduct the above tasks in an iterative design, testing and development sprints to refine the overall product solution</li> <li>● Report the progress and results to the development team at appropriate time intervals</li> </ul> <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> <li>● Always devote fully to all activities related to the analysis of camera data for graphic overlay in AR application, and follow all prescribed guidelines and procedures</li> <li>● Always perform all tasks related to graphics overlay for AR applications in an accurate manner, without sacrificing the results due to time or other limitations</li> </ul>
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> <li>● Complete the analysis of camera data accurately within time and budget constraints</li> <li>● Use camera data to successfully complete graphic overlay for the AR application in concern, and produce appropriate outputs to the satisfaction of the development team</li> </ul>
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