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<p>Tiivistelmä/Referat – Abstract</p> <p>Computer games have traditionally been developed on desktop computers or game consoles. However the explosive growth of the mobile game segment has challenged these traditional game platforms. The development work for the mobile games happens often in similar manner than for desktops or game consoles even modern mobile devices contain technology that differentiates them from the more traditional gaming platforms. Modern mobile devices have among other things different sensors to survey the environment and a GPS-receiver.</p> <p>GPS-receiver offers the location data for the game and the sensors survey different aspects from the environment like the amount of acceleration in three dimensions. The data received from the sensors can be used as part of the user input either unprocessed or it can be processed to filter noise from it. Sensor data can also be used to estimate the gestures or the activities performed by the user and tie them into the game mechanics. Mobile devices have generated new type of game genres which take advantage from the sensor based user input and from the location data of the player.</p> <p>This paper describes those parts from the game engine architecture which are included in the collection and processing of GPS and sensor data. This paper presents a novel architecture model for tying GPS and sensor data as a part of mobile games engine. The paper begins by uncovering the topic by going through the related concepts and describing the idea and the architecture of the different game loop models. After that the run time part of the game engine is studied and the parts related to GPS and sensor data collection and handling are described. At the end the planned architectural model for utilizing GPS and sensor data in mobile game engine architecture is presented. As part of this study the planned architectural model is implemented for Windows Phone 8 platform to test it and the implementation code is used in presenting the architecture.</p> <p>ACM Computing Classification System (CCS): <b>Software and its engineering</b> → <b>Interactive games</b> <b>Computer systems organization</b> → <b>Multicore architectures</b> <i>Software and its engineering</i> → <i>Software architectures</i></p>			
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