Operating System Support for Mobile Device Thermal Management and Performance Optimization in Augmented Reality Applications

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Abstract : Augmented reality applications require a high processing power to load, render and live stream high-definition AR models and virtual scenes; it also requires device sensors to work excessively to coordinate with internal hardware, OS and give the expected outcome in advance features like object detection, real time tracking, as well as voice and text recognition. Excessive thermal generation due to these advanced functionalities has become a major research problem as it is unbearable for smaller mobile devices to manage such heat increment and battery drainage as it causes physical harm to the devices in the long term. Therefore, effective thermal management is one of the major requirements in Augmented Reality application development. As this paper discusses major causes for this issue, it also provides possible solutions in the means of operating system adaptations as well as further research on best coding practises to optimize the application performance that reduces thermal excessive thermal generation.