Low-cost microscopic imaging systems

Microscopes are, in general, is laboratory confined, expensive and needs trained personal to operate and maintain it. This restricts its feasibility in resource-poor regions. Our research group is focused on the development of inexpensive miniaturized microscopic imaging and sensing systems on smartphone platform to address the immediate needs in low-resource areas. These novel devices are developed using commercially available components and 3D-printing technology.

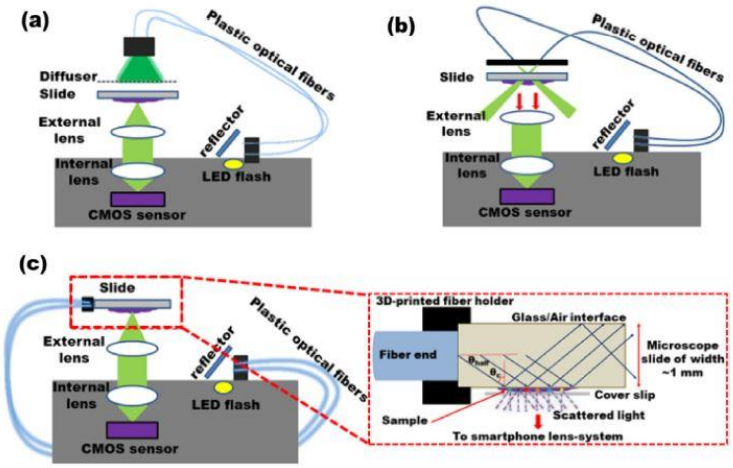

Fig. 1. Schematics of the proposed smartphone microscopic imaging system. (a) BF illumination, (b) OIDF illumination and (c) TIRDF illumination respectively. The inset in figure (c) shows the guided light from the optical fibers propagates in the lateral direction of the glass slide through the process of total internal reflection.

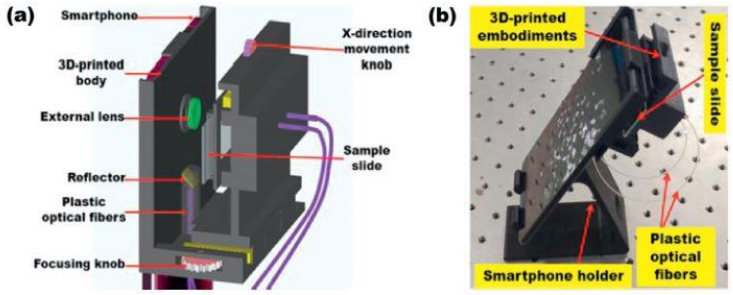

Fig. 2. Smartphone microscopic device. (a) 3D layout of the smartphone platform imaging system and, (b) represents the photo image of the designed set-up developed for the present work.

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Design of a 3D printed smartphone microscopic system with enhanced imaging ability for biomedical applications

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Wide-field multi-modal microscopic imaging using smartphone

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