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## Introduction:

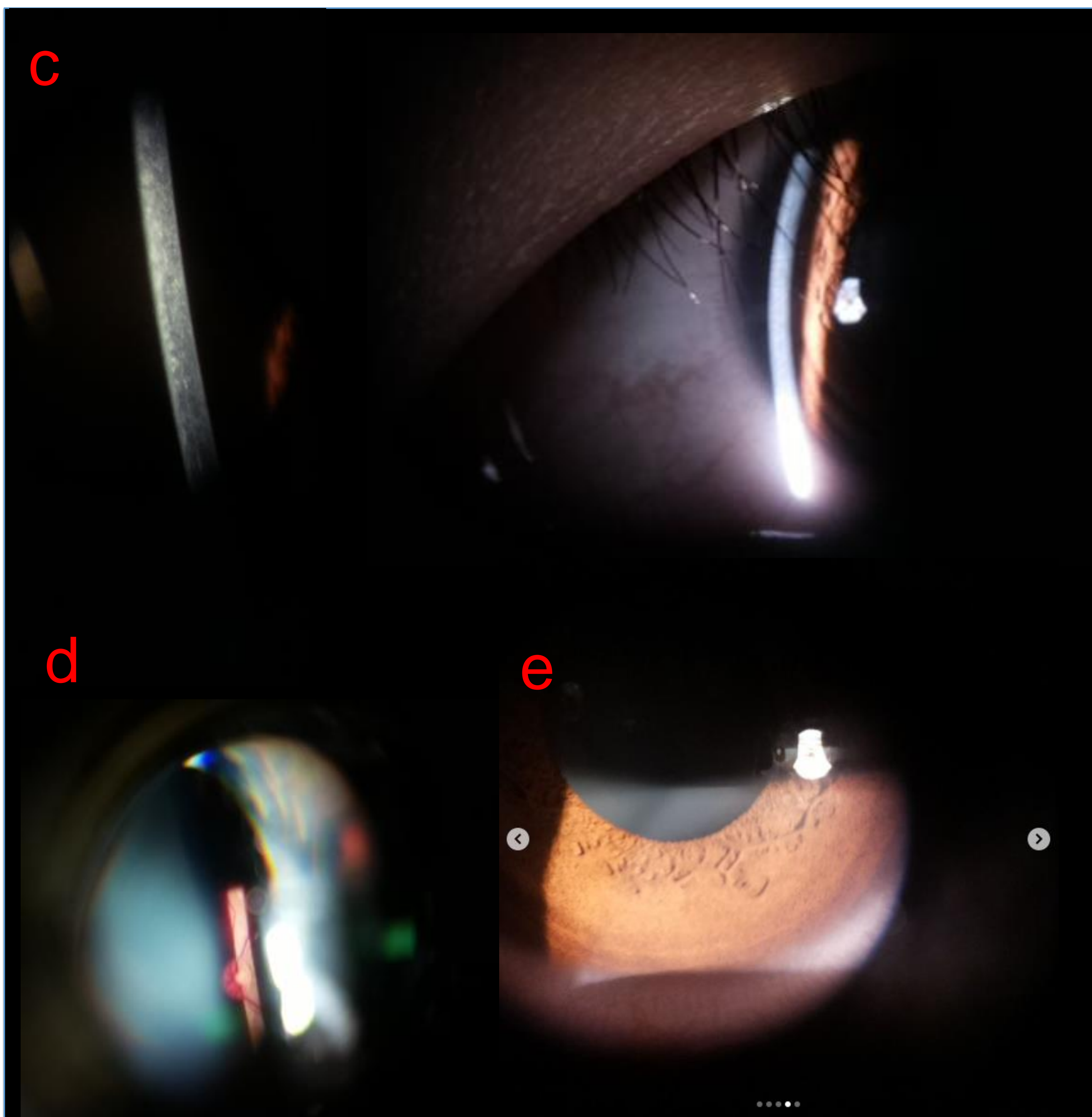
Dedicated slit lamp cameras are very expensive and cell phone adapters are variable in quality and effectiveness.

We design an affordable slit lamp camera, comprised of a Raspberry Pi computer, camera module, and 3D printed adapter, is an affordable way to take slit lamp photos and videos in slit lamps with a teaching scope.

## Methodology:

With a Raspberry Pi 4 computer with a V2 8-megapixel camera attachment and a 4-inch touchscreen (Raspberry Pi Foundation, UK), we utilized Autodesk® Fusion 360 (California, USA) to build a frame to encase its components and 3D-printed an adapter for the side-teaching scope (Figures a and b).

We then wrote code linking the computer to a cell phone app, *Bluedot*, to be able to remotely take photos. We also installed the Rpi-web interface to allow remote access to the Raspberry Pi.



## Results:

The entire RASPI cost \$320.00. The resolution of pictures and videos was high, allowing for sharp images of the anterior segment (Figure c and e) and even the posterior pole (Figure d). Gonioscopic videos of the angle were also able to be captured (QR code below). Streaming to external parties through Zoom® was also possible.



## Conclusion:

The RPi system for the slit lamp allows for a portable and affordable method to take pictures and videos in real time.

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### Proprietary Interest Disclosures

MM, YH, HC, and KJW have no financial disclosures. RT is the owner of Affordable 3D® and was paid in part for printing and design work for this project.