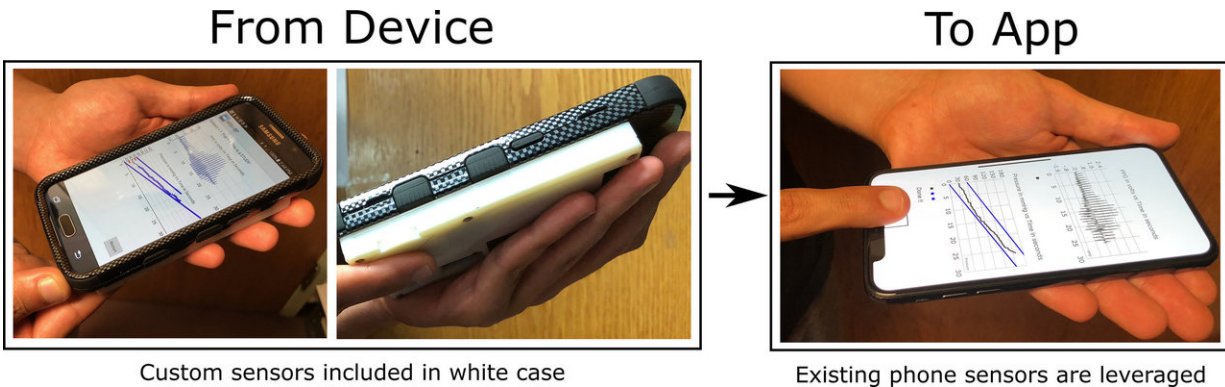


New blood pressure app

September 7 2018, by Layne Cameron



Michigan State University has invented a proof-of-concept blood pressure app that can give accurate readings using an iPhone -- with no special equipment. Credit: MSU

Michigan State University has invented a proof-of-concept blood pressure app that can give accurate readings using an iPhone—with no special equipment.

The discovery, featured in the current issue of *Scientific Reports*, was made by a team of scientists led by Ramakrishna Mukkamala, MSU electrical and computer engineering professor.

"By leveraging optical and force sensors already in smartphones for taking 'selfies' and employing 'peek and pop,' we've invented a practical tool to keep tabs on [blood pressure](#)," he said. "Such ubiquitous [blood](#)

[pressure](#) monitoring may improve hypertension awareness and control rates, and thereby help reduce the incidence of cardiovascular disease and mortality."

In a publication in *Science Translational Medicine* earlier this year, Mukkamala's team had proposed the concept with the invention of a blood pressure app and hardware. With the combination of a smartphone and add-on optical and force sensors, the team produced a device that rivaled arm-cuff readings, the standard in most medical settings.

With advances in smartphones, the add-on optical and force sensors may no longer be needed. Peek and pop, available to users looking to open functions and apps with a simple push of their finger, is now standard on many iPhones and included in some Android models.

If things keep moving along at the current pace, an app could be available in late 2019, Mukkamala added.

"Like our original device, the application still needs to be validated in a standard regulatory test," he said. "But because no additional hardware is needed, we believe that the app could reach society faster."

Internationally, this app could be a game-changer. While [high blood pressure](#) is treatable with lifestyle changes and medication, only around 20 percent of people with hypertension have their condition under control. This invention gives patients a convenient option and keeping a log of daily measurements would produce an accurate average, Mukkamala added.

Anand Chandrasekhar, Keerthana Natarajan, Mohammad Yavarimanesh—all electrical and computer engineering doctoral candidates—contributed to this research.

More information: Anand Chandrasekhar et al. An iPhone Application for Blood Pressure Monitoring via the Oscillometric Finger Pressing Method, *Scientific Reports* (2018). [DOI: 10.1038/s41598-018-31632-x](https://doi.org/10.1038/s41598-018-31632-x)

Provided by Michigan State University

Citation: New blood pressure app (2018, September 7) retrieved 9 April 2024 from <https://medicalxpress.com/news/2018-09-blood-pressure-app.html>

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