A means of measuring total hemoglobin in the blood using a smartphone's camera and flash. Many health conditions — such as anemia, malnutrition and pulmonary illnesses — impact hemoglobin levels. This app is not only a disease screening tool but it can also help medical professionals assess the nutritional well-being of individuals and communities. Current monitoring requires blood samples or expensive equipment. By eliminating the need for blood draws, HemaApp alleviates concerns about sample contamination or infection.

﹀ HemaApp

︿ BiliCam

An alternative for detecting newborn jaundice — which can lead to brain damage and death — using a smartphone's camera and flash. Instead of looking for "yellowness" in the skin, the camera and flash together measure the amount of bilirubin in the blood by examining wavelengths of light absorbed by the skin. In the U.S., this app will enable parents and general practitioners to screen before involving a specialist. In many parts of the world, midwives and traveling nurses more commonly deliver babies. Currently they have no screening tool for jaundice; this app will provide them with one.
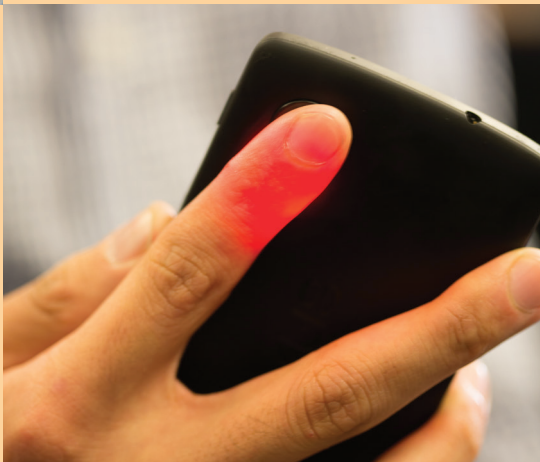
︿ SpiroSmart

Hundreds of millions of people world-wide suffer from chronic respiratory diseases, and millions die each year. SpiroSmart measures lung function by having the patient blow into a phone's microphone, replacing an expensive dedicated spirometer for diagnosing and managing asthma, cystic fibrosis and other pulmonary diseases. SpiroCall is a related project that is particularly useful in low-resource settings where smartphone access is limited. It turns any ordinary phone into a spirometer through a toll-free calling service.

health @ ubicomplab
UNIVERSITY OF WASHINGTON

Enabling smart care through smartphones

Measures blood pressure by using Pulse Transit Time (PTT) analysis, the time taken by a pressure pulse to travel through the arteries. One method uses a phone's dual camera to measure a person's pulse at his/her fingertip and ear simultaneously. A second method uses a phone's microphone and camera to listen to the patient's heart beat and measure pulse at his/her fingertip. In addition to tracking, BPSense can also remind individuals to check their blood pressure at various times throughout the day.

﹀ BPSense

︿ CoughSense

Coughing is the number one symptom individuals report when experiencing an illness. Currently, to assess coughing, patients are asked to self-monitor or wear specialized equipment. CoughSense uses the phone's microphone to monitor cough frequency for a single person or, when networked, to track trends across an entire population. In this way, it will be an important tool in monitoring the spread of diseases such as influenza or tuberculosis through pattern recognition in high-density areas. Further analyzing the cough signal could uncover the cause of certain symptoms.

Find out more...

http://ubicomplab.cs.washington.edu

Ubiquitous Computing Lab
University of Washington
Professor Shwetak N. Patel