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Mask-Based Covid-10 testing system using Exhaled Breath Condensate

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In Development

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Team Exhaled Breath Condensate

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ABSTRACT

The Kinaptic mask-based COVID-19 testing system uses a unique Exhaled Breath Condensate (EBC) collector that converts breath vapor to a liquid biosample for rapid testing and wireless automatic contact tracing. Exhaled Breath Condensate (EBC) is collected from a mask-based EBC collector as a low cost disposable component. Our electronic biosensor detects even low concentrations of virus biomarkers if they are present in the EBC sample. Corona viruses have slowly evolving N-protein and quickly evolving S-protein. N-Protein testing screens for *any* corona virus infection / S-Protein screens for *only* COVID-19 infection. The Kinaptic mask-based COVID-19 testing system is a "two-stage filter": 1) catch only of N-protein biomarker = trigger warning to get more stringent diagnostic and contact trace; 2) catch both N- and S-, or just S- biomarkers = more urgent need for immediate quarantine and medical attention. As the target biomarkers bind to the capture molecules, the electrical conductivity of the electronic biosensor changes. This change in conductive is amplified by our bluetooth electronics, analyzed to determine the presence and quantity of the target biomarker, and the test result wireless transmitted to a smartphone or directly to the cloud.

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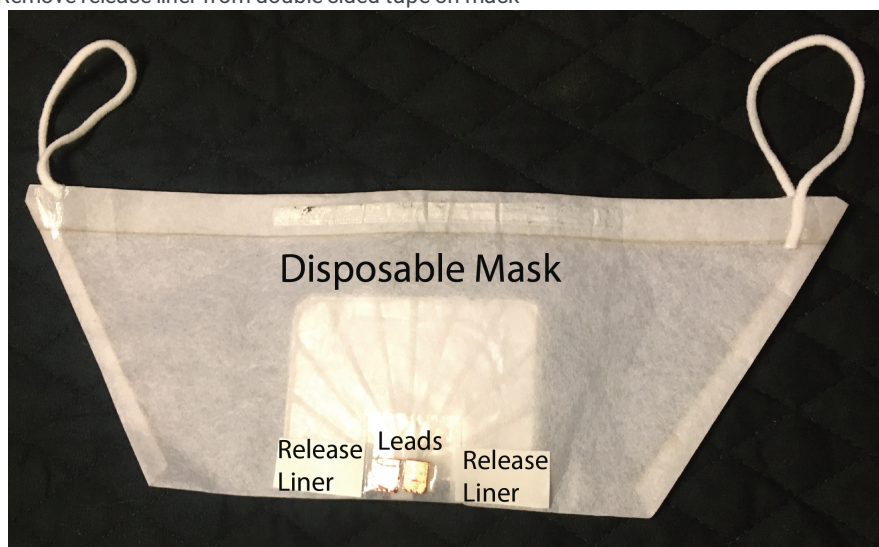
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- 1 Remove release liner from double stick tape on electronics



Sanitizable Electronics

- 2 Remove release liner from double sided tape on mask



Disposable Mask with Exhaled Breath Condensate Collector

- 3 Pull tab to Activate Battery and Adhere electronics to mask



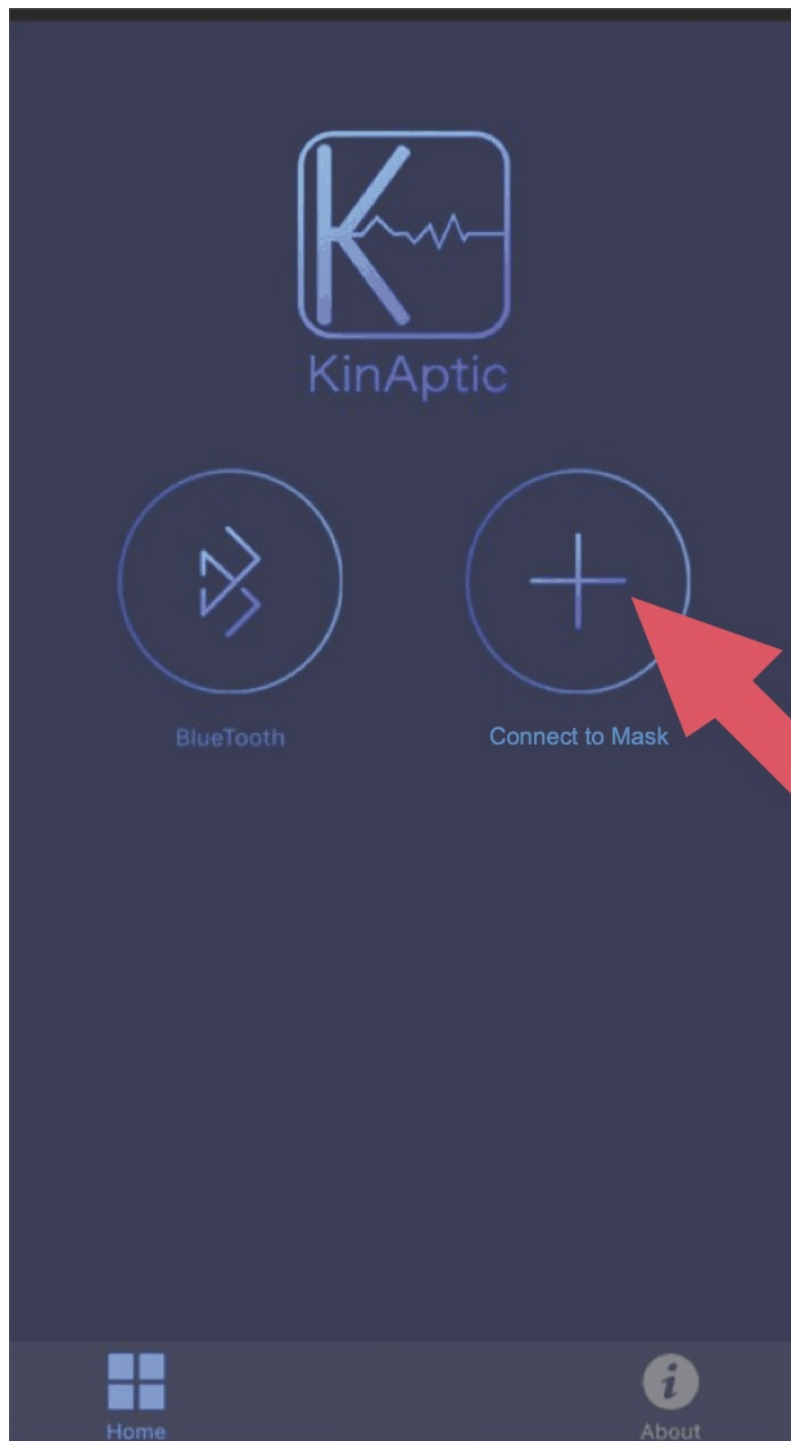
Sanitizable Electronics mounted on Disposable Mask

4 Open APP on Smartphone



Kinaptic APP will be available for IOS and Android

5 Connect to Mask Electronics

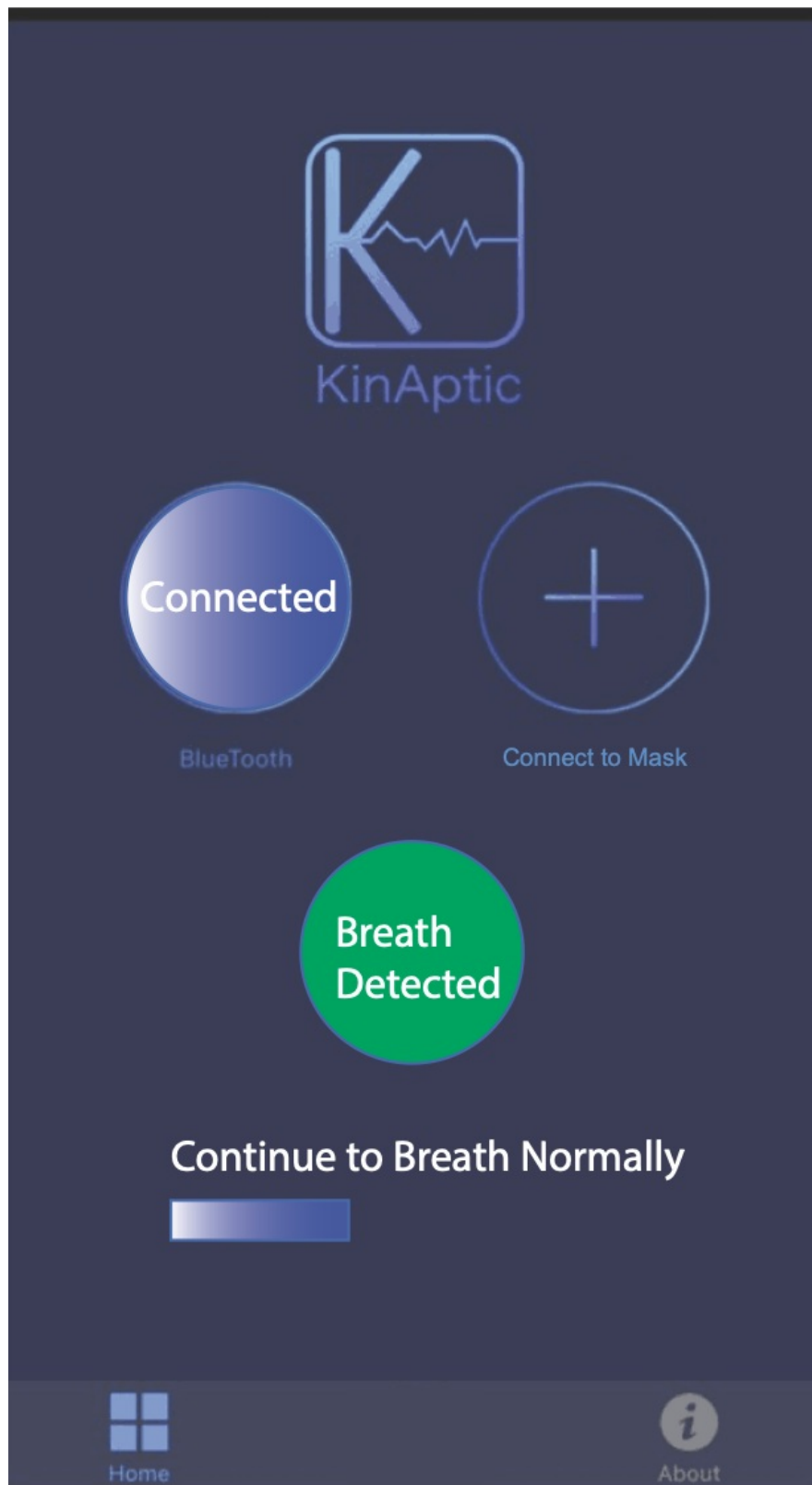


6 Put mask on and breath normally.



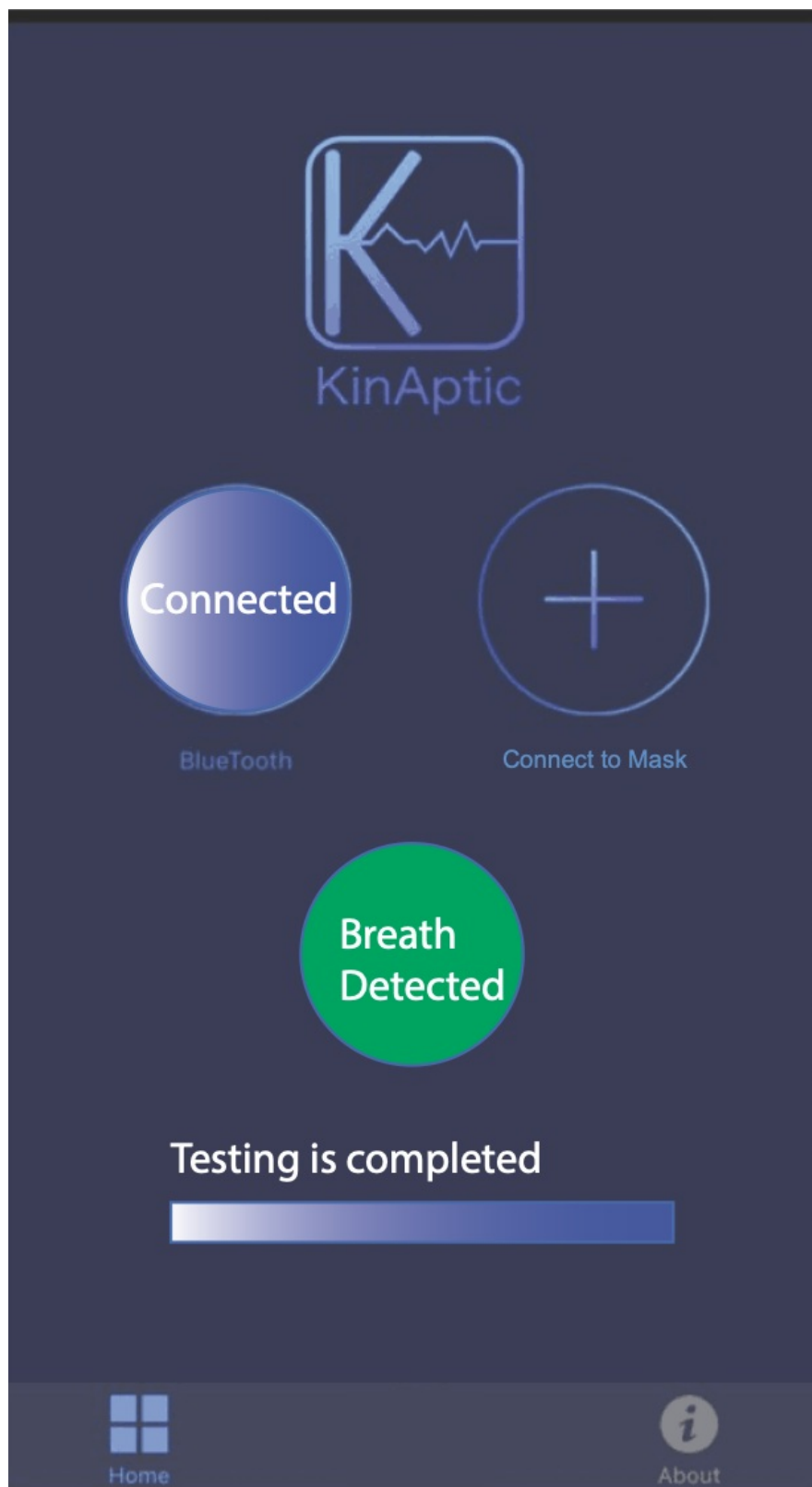
Mask on Head of Test Subject

7 Continue to breath normally



APP Screen

8 Testing is Complete



APP Screen

9 Upload results



APP screen