



Version 2

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Mask-Based Covid-19 testing system using Exhaled Breath Condensate V.2

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Works for me

This protocol is published without a DOI.

Coronavirus Method Development Community

Front Line Technologies

2 more workspaces



John Daniels

ABSTRACT

The DiagMetrics (fka Kinaptic) mask-based COVID-19 testing system uses a unique Exhaled Breath Collector (EBC) that converts breath to a liquid bio sample (condensate) for rapid testing and wireless automatic contact tracing. The Exhaled Breath Condensate is collected from a fan-shaped condenser embedded in a mask, which then funnels the sample to our proprietary electronic biosensor. The biosensor is functionalized using engineered Covid-19 antibody fragments as the capture molecules. These engineered antibody fragments have a strong and selective affinity for the COVID-19 S-protein. Once the S-protein attaches to the antibody fragments, the electrical characteristics of the biosensor change, resulting in a change in current flowing through the biosensor. The change in current triggers a signal that is sent via Bluetooth to a smart phone app, which then signals to the user a "positive" test for COVID-19. This smart phone app can then be used to perform contact tracing. If the change in current is below a predetermined threshold, the test will be deemed "negative". In the situation where a test is "negative", the full testing system can be reused. Our electronic biosensor has been proven to detect low concentration levels of the COVID-19 S-protein and typically takes less than 10 minutes for a test to be completed.

The DiagMetrics mask-based testing system is low cost, easy to use, and provides rapid results. This testing system can be used at home, in businesses, in schools or in other municipal and public settings to provide a method for proactively detecting and isolating positive Covid-19 cases before the virus is transmitted to other people.

EXTERNAL LINK

<https://diagmetrics.com/>

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PROTOCOL CITATION

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Version created by John Daniels



EXTERNAL LINK

<https://diagmetrics.com/>

KEYWORDS

Exhaled Breath Condensate, rapid Covid-19 test, point of care Covid-19 test, EBC Covid-19 test

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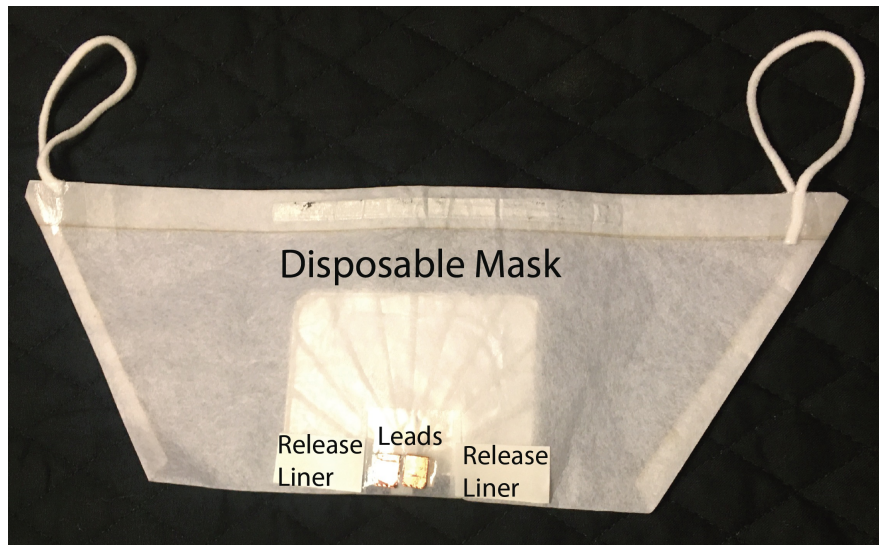
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- 1 Remove release liner from double stick tape on electronics



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

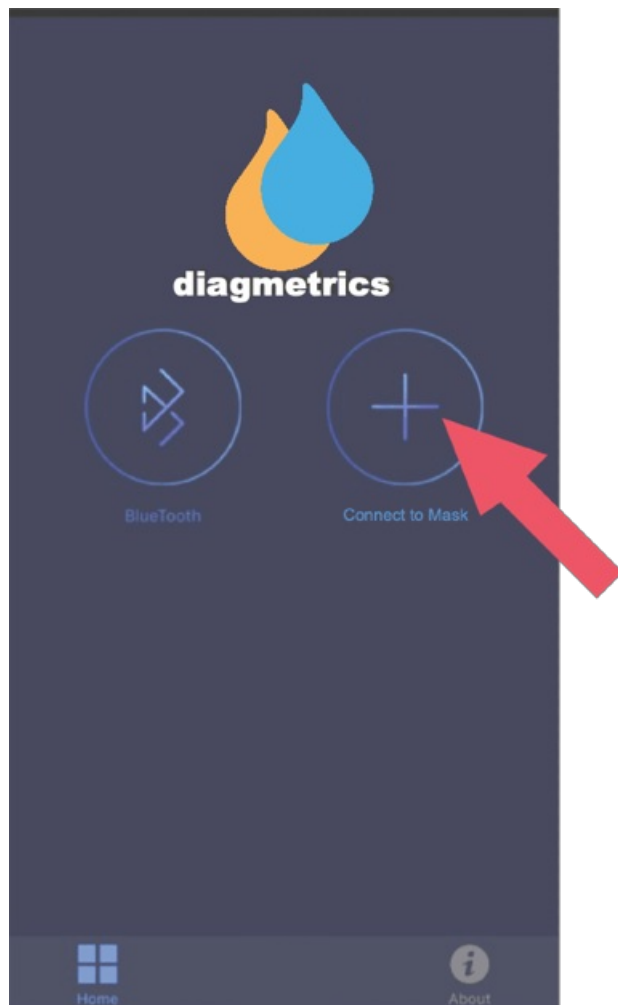


Sanitizable Electronics mounted on Disposable Mask

- 4 Open APP on Smartphone



5 Connect to Mask Electronics

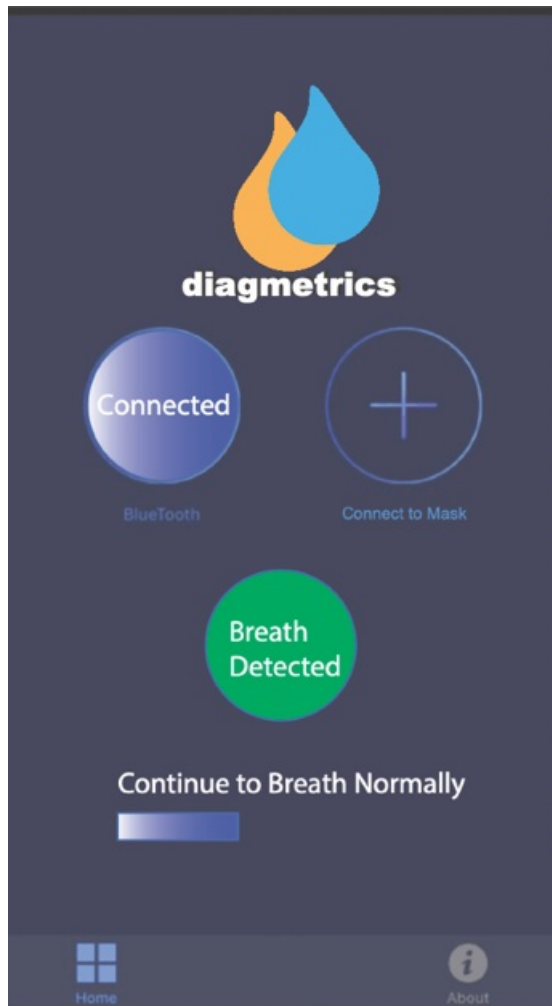


- 6 Put mask on and breath normally.

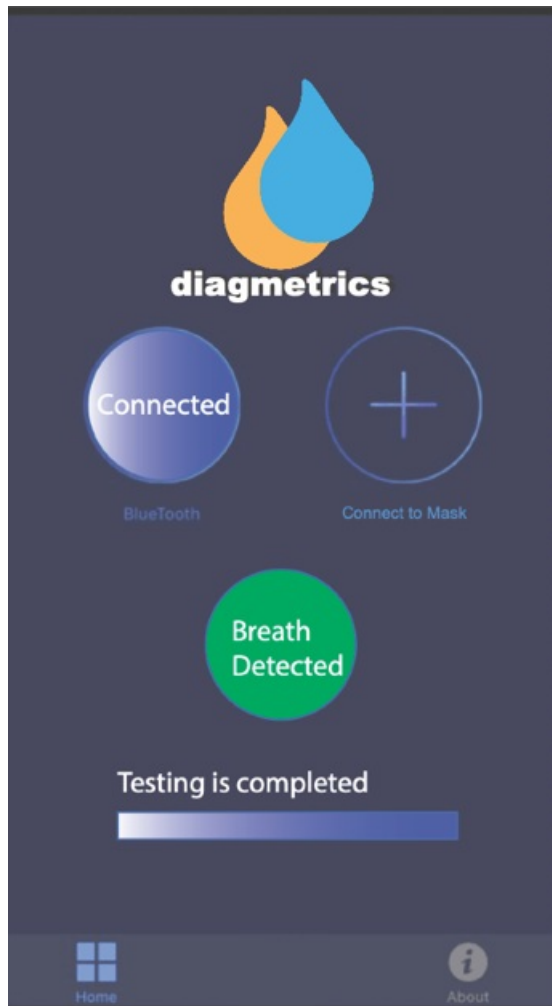


Mask on Head of Test Subject

7 Continue to breath normally



8 Testing is Complete



9 Upload results

