

# COVID Prevention: More Precise Contact Tracing

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A research article "Measuring the scientific effectiveness of contact tracing: Evidence from a natural experiment," stated, "...a total of 15,841 COVID-19 cases (around 20% of all cases) failed to have timely contact tracing." Contact tracing is a method of tracking student movement to reduce COVID cases, which has not always been proven to be completely precise. This device is purposed to accurately observe contact and student movement, benefiting a school's student health and exposure to the virus. The device was created using an RFID RC552, Arduino UNO, RFID Tags/Cards, and an Ultrasonic Sensor for the device to fulfill its functions. The RFID RC55 emits radio waves until it reaches the tag or card, which is reflected back to the device allowing it to be read. Students are accurately located because the Ultrasonic Sensor measures the distance between the device and the student using sound waves. It identified people within each other at 6 feet for more than 15 minutes. This device was tested manually by scattering RFID Tags and Cards in distinct areas with no interferences. The data gathered from the device will show in the interface, where it is measured by observing the geographical & identification accuracy. With students using a card/tag, their location was identified and placed geographically by the device. The trials averaged 98% accurate for geographical and 95% for identification. The device proved to be effective by meeting all the design criteria and exceeding trial expectations.

## Awards Won:

NC State College of Engineering: Scholarship to attend NC State Engineering Summer Camp