



# Clear2there Body Temperature Measurement System

Helping schools across the country to reopen safely.



# Reducing the Spread of Infectious Disease on Campus

Clear2there delivers a fast, safe, and accurate large-scale elevated temperature detection system.

According to clinical manifestation statistics, 28 out of 39 statutory infectious diseases display fever symptoms in the early stage. This can include illnesses such as common influenza, severe acute respiratory syndrome (SARS), and COVID-19. Symptoms of COVID-19 exhibited at illness onset do vary, but over the course of the disease, the Centers for Disease Control and Prevention (CDC) states that most afflicted persons will present with fever 83 to 99 percent of the time.

Manual body temperature screening using hand-held thermometers can be incredibly time-consuming, may produce inconsistent and inaccurate results, and places screeners at risk of infection due to the close physical proximity required. Clear2there offers a fast, safe, and efficient solution that supports:

- **Intelligent Face Tracking:** A state-of-the-art face recognition algorithm is used to accurately identify and measure the temperature of a targeted individual.
- **Multiple Simultaneous Detections:** Rapidly and reliably complete 16 temperature measurements within 30 milliseconds at a distance range of 10 to 15 feet.
- **Bi-Spectrum Real-Time Monitoring:** Visible light is all that is required to capture the human face, enabling real-time thermal imaging of body temperature under versatile conditions.
- **Accurate Temperature Detection:** The system is rated with a temperature detection accuracy level range of within 0.5 degrees Fahrenheit.

The Clear2there Body Temperature Measurement System enables automated, safe, and reliable detection of elevated body temperatures as part of a preliminary screening process.

Let Clear2there provide a better way to open your doors safely.

"It's a very passive, non-invasive system, so it doesn't hurt anyone to take their temperature, but it gives some insight if there is a problem that you wouldn't know about otherwise. The fact that we have taken this step helps parents feel better, and shows that we are making safety a priority and doing whatever we can to keep the kids safe." – Superintendent of Schools at a multi-site Clear2there system deployment



Traditional hand-held thermometers work well enough for measuring a single individual's temperature when screening a very low number of people. But what about when a non-contact temperature assessment program must be implemented in a school environment to screen a much greater number of people? Along with the inherent safety risks, manual screening processes offer no reliable and efficient means by which to document and record the temperature readings. The deployment of a Clear2there Body Temperature Measurement System addresses these concerns, helping to mitigate the spread of COVID-19 and manage a safer return of students and staff back to campus.



# Delivering a Complete Fever Detection Solution for Schools

## A critical component of an effective COVID-19 screening program.

With a push across the country to bring kids back to the classroom, school leaders are seeking ways to create the safest possible learning environments for students and staff. Implementation of security measures that can help prevent COVID-19 spread on campus is critical to achieving this goal. Clear2there's non-contact thermal imaging camera system supports the identification and triage of those who may have elevated temperatures. Key benefits of the solution include:

**Safer temperature assessments:** The person managing the system is not required to be physically close to the individual being evaluated, and can even be in an altogether different area or room.

**More efficient screening processes:** The system measures surface skin temperature faster than a typical forehead or oral thermometer, and supports physical distancing efforts.

**Accurate and reliable temperature readings:** Scientific studies have shown that, when used correctly, thermal imaging systems generally measure surface skin temperature accurately.

### FAST FACT

As part of their COVID-19 response, three different Army programs have led the initiative to use thermal imaging devices to screen for elevated body temperatures among personnel entering military facilities.

## How the Clear2there System Works

The Clear2there Body Temperature Measurement System is comprised of three core solution components – a dual-channel or bi-spectrum thermal camera, a blackbody thermal calibration device, and the Clear2there video management software client.

The Clear2there dual-channel camera produces a video stream, with the visible spectrum camera functioning in a similar way to our standard video surveillance cameras. The thermal camera provides a visual representation of the infrared energy emitted by individuals and objects, which supports elevated body temperature detection.

The Clear2there blackbody thermal calibration unit maintains a specific temperature while not reflecting any energy from the surrounding environment. It serves as a constant point of reference for the Clear2there thermal camera. The blackbody device is manually set at a prescribed temperature and the thermal camera is then configured based on that designation.

The Clear2there Body Temperature Measurement System is best leveraged as part of a broader pre-screening operation. As people pass through a defined screening area, their temperatures are read automatically and, depending on the configuration, these readings can be stored and alert notifications generated if a temperature exceeds a specific threshold. Alerts can include audible and visual alarms as well as email and push notifications. Flagged individuals can then be sent to another location for a secondary screening process. This automated approach enables a much larger number of people to be screened, and reduces the possibility of human error as well as virus transmission.

The video and thermal streams as well as temperature readings are captured for each subject. These readings, along with supplemental log data and notes related to specific over temperature measurement events, are stored in a centralized SQL database. These data sources in turn enable powerful and intuitive search functionality as well as detailed report generation and statistical analysis via the Clear2there video management software client.



### Dual-Channel Thermal Camera

The thermal camera provides a visual representation of the infrared energy emitted by individuals and objects, supporting elevated body temperature detection.



### Blackbody Thermal Calibration Unit

A thermal calibration device is typically used when more precise temperature readings are required, as is the case with screening for elevated body temperature.



### Video Management Software Client

Via the Clear2there video management software client, you can access powerful and intuitive search functionality as well as detailed report generation and statistical analysis.



## ROANE COUNTY SCHOOLS

### Roane County, West Virginia

Roane County Schools, a rural school district in West Virginia serving approximately 1,900 students across one high school and four middle and elementary school campuses, is dedicated to providing each child with the best educational opportunities possible and supporting them academically, emotionally, physically, and socially. For Roane County Schools' leadership, in the face of the COVID-19 pandemic, that mission has proven more critical than ever before.

The staff at Roane County Schools began planning during spring of the prior school year to assess how they would manage school re-entry in the fall. They wanted to do so in way that would be safe for everyone, and would support the efficient screening of anyone that enters the building, including teachers, students, and visitors.

Because the schools in the Roane County Schools district are older, they don't have the wider, open hallways and entrances that many newer schools have incorporated into their design. Additionally, because they are a small, rural district, Roane County Schools simply doesn't have the staff to support conducting temperature screening on a one-by-one basis. Working with physical constraints and limited resources, district leadership is constantly searching for ways to do more with less.

In addition to addressing general concerns about managing the overall speed and efficiency of their entry screening processes, Roane County Schools also had to consider the impact of impending adverse weather conditions. They needed to avoid a situation where safety screenings were being performed, but in a slow and inefficient manner that could result in students and staff standing in lines outside in frigid temperatures.

Leadership recognized the shortcomings of manual temperature-taking using hand-held devices as a primary means of conducting fever screening assessments. While Roane County Schools had hand-held thermometers that could be used for individual follow-up temperature screenings, those devices are inherently slow and can be inaccurate if improperly used.

With a focus during their planning stages on ensuring an expedient, accurate, and safe screening program for students and staff, Roane County Schools turned to their technology partner Frontier Communications, who recommended the Clear2there Body Temperature Measurement System. Operating with a high sense of urgency to get a solution in place and ready to use by the start of the new school year, they moved quickly to review the Clear2there solution's features and capabilities to confirm that it could properly address their requirements.

Roane County Schools was able to incorporate the Clear2there system as an integral part of a re-entry plan across all of their campuses. The system was deployed at the main entrances of all five of the district's schools, with a consistent entry process implemented at each campus location. A member of the school staff, as well a member of the local hospital staff, sits at the door as students and teachers come in. If an elevated temperature is detected, that individual stands to the side momentarily, and is re-screened using the thermal system. Should that individual continue to display a high temperature, the medical staff will take over, and they will screen with a hand-held thermometer to obtain a second data point. If a high temperature is again noted, the affected person is isolated and a medical evaluation is conducted.

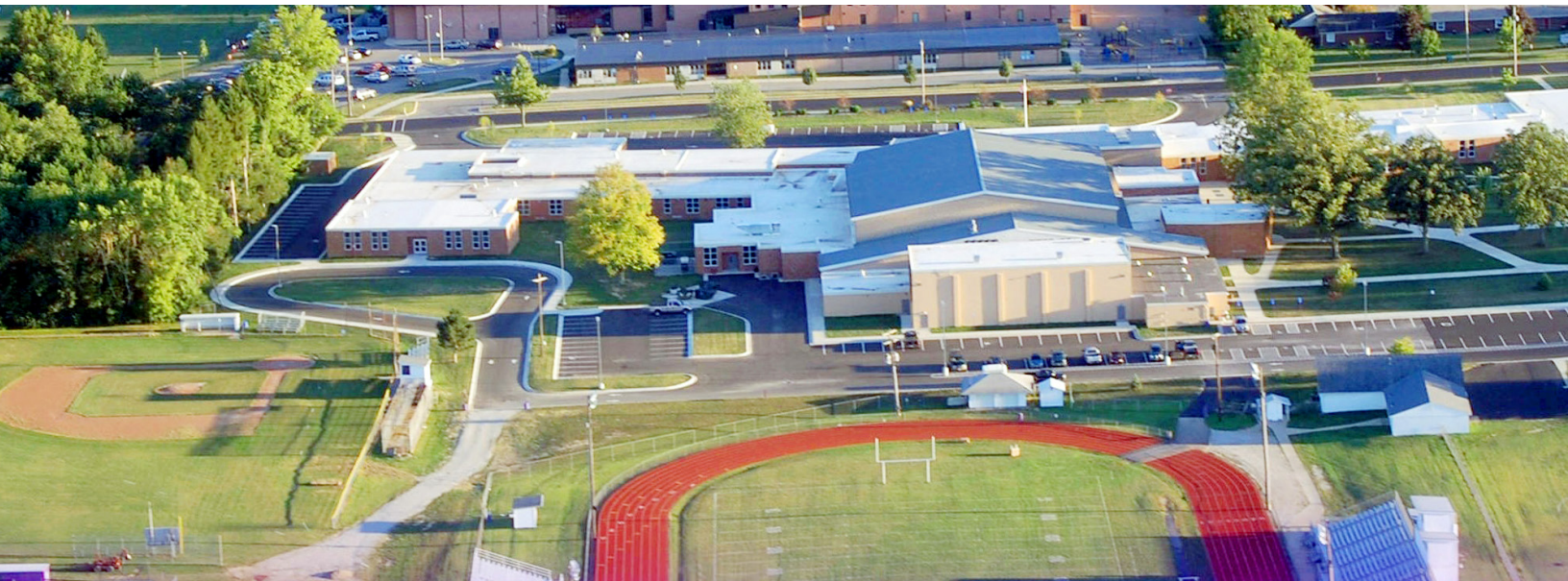
The benefits of the system relative to accuracy and speed were immediately apparent. Because the camera self-calibrates via the blackbody device, it helps to ensure more precise temperature readings. As it relates to efficiency, Roane County Schools was able to process entire groups of students and staff at speeds comparable to their normal pre-COVID entry processes.

From a safety perspective, community response to the system has been positive, as it has reassured the public, particularly parents, that any individual presenting with a fever will be screened out quickly, and will then undergo further medical evaluation with hospital staff.

The Clear2there system has also proven beneficial in supporting other aspects of Roane County Schools' re-entry plan, particularly with respect to mask wearing and physical distancing. School leadership is requiring 100 percent indoor mask-wearing. Because faces can be seen very clearly via the camera image, it can be detected if an individual is wearing a mask or not. This has helped with ensuring adherence to and accountability of the face mask policy.

With the smaller entrances Roane County has at each of their school buildings, it is especially important to keep students moving along in an orderly and expedient fashion. The Clear2there system has helped to keep students and staff moving quickly during transition periods, and has reduced instances of unwanted congregation.

Post-COVID, the system may continue to provide value as it relates to the overall health and wellness of students, staff, and families in the school community. The solution can be used to identify not just possible COVID cases, but also the flu, strep throat infections and other contagious illnesses that may present with fever. Because the Clear2there thermal imaging system is a non-contact, non-invasive, passive system, it can alert to a potential problem without creating any inconvenience or discomfort for screened parties.



## MOUNT GILEAD SCHOOL DISTRICT

### Mount Gilead, Ohio

Mount Gilead is a village located in Morrow County, Ohio, 41 miles northeast of Columbus. Mount Gilead Exempted Village School District is known for the care it provides to each of its approximately 1,200 students. As a small town community, Mount Gilead prides itself on being a very outcome-focused school district. In the face of the COVID-19 pandemic, that mindset factored prominently into the development of Mount Gilead's reopening plan for the 2020 – 2021 school year.

As in other states across the country, Morrow County and Mount Gilead School District leadership regards the reopening of their schools for in-person learning as vital to the health and overall well-being of students. They believe the academic, developmental, and social support provided at school is necessary to ensure the children in their community continue to learn and attain new skills. For Mount Gilead School District, striking a balance of safe instruction and infection prevention underpinned their COVID-19 management strategy planning efforts.

Mark Ames, a technology consultant contractor, is tasked with helping, guiding, and directing Mount Gilead School District to incorporate technology to ensure the best learning experience for students. In identifying and recommending a temperature screening technology solution, Ames knew he needed to ensure alignment with federal, state, and local guidance, as well as address the unique perspectives and concerns of the Mount Gilead School District Board of Education members.

Like other school districts, Ames and the Mount Gilead district leadership team were operating under strict time constraints to get a solution in place to support student re-entry for the upcoming school year. "I was working on a solution to conduct temperature scanning, and hoping, praying, that students would be back in the school in the fall," Ames says. "I knew I had a short time window in which to install and implement a solution that could be managed by the district to provide the services we believed would be required. We were also following the multitude of guidelines given by the state of Ohio and the local and state health departments concerning what we needed to do to open up the buildings safely."



While managing all of those different dynamics could prove challenging, Ames had a clear vision for what a suitable technology solution would need to deliver. "I was looking for an enterprise-class product that could be managed remotely, enabling temperatures to be taken in an automated, non-contact manner. If this was going to be a way we fight viruses or significant illnesses in the future, that managed service concept was very important," explains Ames. "The product Clear2there offered was an enterprise solution that could be hands-off, and could take temperatures without human intervention."

The Clear2there Body Temperature Measurement System met Ames' expectations in those key areas, while also allowing him to convey to district leadership the cost-saving and operational efficiency benefits of the solution. "I centered the sale concept to the superintendent on the premise that we're not utilizing human resources to take temperatures of children and staff. It's a remote resource that is providing the service, and we're not expending personnel dollars on time spent taking temperatures, making it a more effective and efficient process," says Ames.

With buy-in and approval obtained from district leadership, Ames was able to integrate the Clear2there solution as a key component of Mount Gilead's reopening health and safety plan, deploying a total of six systems across all of their campuses. "We looked at the student and staff flow into the buildings to determine how we could scan temperatures in a way that would be most effective and efficient and not disrupt the operation of the facilities," Ames says. "They have three buildings here, elementary, middle school, and high school, so we covered the student and staff entrance and a bus entrance at each school building."

Along with monitoring the normal, day-to-day incoming traffic at the three schools, Ames also had an eye toward managing other events that could drive more visitors to Mount Gilead's high school campus. "In the high school we wanted to be able to scan parents and community members coming into the building for outside fall and winter activities, like basketball, volleyball, and so forth. That would give us an opportunity to get a pretty good capture of who was coming in to the facility," says Ames.

According to Ames, community and staff response to the deployment of the Clear2there thermal screening systems has been resoundingly positive. "The community was encouraged that the district was trying to open up and get children in seats and in the building, so they were happy with that. The staff and administrative team members were elated that we had the cameras, and really appreciated that I was going forward with a device that streamlined the process of taking temperatures and that we were being proactive," says Ames.

Similar to studies showing the proactive crime prevention advantages associated with deploying video surveillance cameras, Ames believes that community awareness of the Clear2there thermal camera systems has actually served as a deterrent, discouraging those who may be ill from even attempting to enter the Mount Gilead school facilities. "It became common knowledge very quickly in the community that we had these thermal cameras installed," explains Ames. "So people were deterred from entering a facility or the district buildings if they had a temperature."

Ames also expects the Clear2there system could deliver ongoing value for the district and the larger community by potentially heading off and managing future infectious disease outbreaks. "I think it is a really proactive solution, and it could help the local health departments. Maybe we can isolate cases of future illnesses before we infect entire facilities, students, and staff, and possibly family members and community members as well. I think it allows that to happen, where we didn't have that ability before," says Ames.



[www.clear2there.com](http://www.clear2there.com)

Clear2there, LLC  
2904 W Russell Street  
Sioux Falls, SD 57107  
605.777.7006

The Clear2there Body Temperature Measurement System is not a medical device and is not designed for diagnosis, prevention, or treatment of any disease or condition. The solution is a screening tool that can be used to identify individuals with elevated skin temperature compared to a customizable reference temperature. Copyright 2020 Clear2there, LLC.