by Melissa Vaccaro, BSEd, MS, CP-FS, FMP

1 HOUR CE CBDM Approved SAN

Food Safety Technology

There's an App for That!

FOOD PROTECTION CONNECTION

Advances in foodservice technology promise more individual accountability, accurate monitoring, and safer food

Many food facilities, particularly smaller operations with fewer resources, use traditional paper-based logs for monitoring food safety. But this traditional approach is likely to pose several operational and scalability issues. While paper-based monitoring (i.e. log sheets) will allow basic tracking, it does little to proactively encourage proper use. Paper-based processes are notoriously time consuming, likely to be inaccurate, often hard to read, and employees frequently forget to fill them in. Over time, daily paper logs can cause significant, ongoing storage management issues if records are retained for two years or more.

Use of digital devices (non-paper systems) will help control these issues in addition to thwarting dry-labbing and record falsification, and will ultimately hold the food employee accountable for their monitoring activities. More accurate monitoring will lead to safer food.

As a substitute to paper-based monitoring and record keeping, technology companies understand that HACCP (Hazard Analysis Critical Control Point) compliance is an application appropriate for our changing world. Mobile devices and tablets can be preloaded with HACCP checklists, prompt food employees to perform mandatory checks, verify that the tasks were completed, followed by

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gathering and transmitting data (e.g., temperature readings) to the Cloud where they can be stored, analyzed, and reported for compliance purposes.

Current temperature monitoring devices/sensors are a marvel. They make it simple for food workers, managers, and owners to stay on top of food temperatures to ensure safe meal production. This can be done from wherever they are. With automated alerts, no employee action may be needed at all. However, choosing which wireless device or system can be a perplexing process.

WI-FI OR BLUETOOTH?

Should you opt for Wi-Fi or Bluetooth connectivity in your food safety devices? Wi-Fi is a communication process that allows devices to connect to a central hub (like a router, via wires or wirelessly), and through that hub connect to each other through a network and/or to the Internet. Wi-Fi is what we often use to go online. It works great if you're monitoring few pieces of equipment and/or have to transmit data over a large distance. However, Wi-Fi devices can be expensive and are not always easy to set up.

Bluetooth, on the other hand, operates independent of Wi-Fi and is wireless. Bluetooth is used for transmitting data between devices over short distances. When using Bluetooth, devices can talk with each other. In other words, the wireless sensor in the freezer or the temperature probe in your hand can communicate directly with the tablet or phone being used to complete the monitoring activity.

Bluetooth is often described as user-friendly and mobile-friendly. Set-up is usually much easier compared to Wi-Fi. The key is to make sure the device uses a communication protocol that will work in your facility's environment. For instance, cheap Bluetooth devices may not have the transmission power to get a signal through the thick, insulated walls of a walk-in freezer. When looking to purchase a Bluetooth device, be sure to ask about the frequency and power of any system/device you buy, to ensure it will work in your facility.

Why not use wired systems? At one time, wired systems offered greater dependability and lifespan of the unit was good, but enhancements in the technology of wireless devices/sensors have offset those early advantages. Additionally, wired systems might require you to alter equipment to install the wires and probes, adding cost and potentially voiding the warranty of your food equipment. Altogether, you'll have greater convenience and cost-effectiveness with modern wireless equipment.

HACCP COMPLIANCE

HACCP (Hazard Analysis Critical Control Point) is a proactive program used by the food industry which ensures that consumers have a product that is safe for consumption by preventing, eliminating, or reducing risk of foodborne illness. Facilities that make, handle, or distribute food may be subject to a HACCP inspection. Regulators are tasked with verifying that there is a vigorous and understood HACCP system in place and that it is being followed. The inspection criteria similarly confirms that staff members are trained, and that appropriate equipment is available to them for monitoring purposes. Thermometers are a critical component for HACCP compliance. In HACCP, there is a requirement for record-keeping and these

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BLUETOOTH THERMOMETERS AND TEMPERATURE SENSORS

One practical application for Bluetooth devices is the food thermometer or food temperature sensors. A food thermometer must be used in a specific and controlled manner, the temperature data collected at source (e.g. the food or the equipment), and is an essential part of any foodservice operation to ensure the safety of the food. Bluetooth devices use standard Bluetooth device coupling (pairing) which ensures both accuracy of data transmission and security. Bluetooth thermometers/sensors work in real time, transferring data quickly. Bluetooth thermometers generally have a maximum range of 328 feet; however, walls or other obstructions might reduce this. They are an ideal solution for busy and flexible working environments.

By using the operating systems of a mobile phone (or other similar mobile device) and controlling and collecting data via an accurate data transmission format, Bluetooth thermometers add controllability, convenience, and accuracy of reporting. Collecting the temperature data on an iOS (e.g. Apple) or Android mobile device is then available for analysis or sharing. Apps (applications) can be installed on mobile phones and tablets, so there is no need to buy a separate base unit.

A wide variety of Bluetooth thermometers and systems are on the market ranging from $50 to more than $500. Even the smallest of facilities can use a simple Bluetooth thermometer to track temperatures using their smart phones.

records are also subject to review by the regulatory agency. Bluetooth devices can aid in HACCP compliance.

Although temperature-measuring devices have been around for years, the developers of new, state-of-the-art thermometers believe they have come up with even better solutions. Digital Bluetooth thermometers help foodservice facilities reduce food safety and compliance risks through the following features:

- Real-time reporting
- Ability to monitor out-of-compliance inspections remotely
- Ability to manage and compare multiple facilities
- Turnkey setup to comply with regulations
- Real-time notifications of out-of-compliance temperatures

THERE'S AN APP FOR THAT

With most devices on the market, you download an app (often free) from the App Store or Google Play to use with your device. Most apps are characteristically user-friendly. You can often mix and match Android and iOS (e.g. Apple) devices. Although some systems may be very advanced, most devices and their corresponding apps can perform or monitor the following:

- Cooking Temperatures
- Reheating
- Cold Holding
- Receiving Checks
- Cleaning Checks
- Equipment Temperature Checks
- Cook to Cooling
- Hot Hold for Cooling
- Calibration Checks (Probe)

Ensuring that food is at the correct temperature (held, cooked, cooled, or reheated) is one of the biggest challenges facing the foodservice industry. Improper holding temperatures (hot or cold) and improper cooking are two of the five CDC Risk Factors identified by the Centers for Disease Control and Prevention to cause a significant number of foodborne illnesses. Controlling these risk factors is essential to ensure we have safe food.

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Dietech Software

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A Bluetooth thermometer or digital Bluetooth monitoring system may be the start of a very solid HACCP program.

One side note: Please remember that your smartphone and Bluetooth devices can harbor bacteria and viruses, so be sure to clean and sanitize them often and appropriately. E

SOURCES

- *www.cdc.gov*
- *www.fda.gov*
- *www.intel.com/IoT*
- *www.techopedia.com*

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This Level I article assumes that the reader has entry level knowledge of the topic. The desired outcome is to ensure a foundation of basic concepts of the subject matter.

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1. Traditionally, many food facilities use
   A. Paper-based monitoring records
   B. Video-based monitoring records
   C. Computer-based monitoring records
2. Wi-Fi connects devices to
   A. A non-central hub
   B. The regulatory authority
   C. A central hub (router) and to a network/Internet
3. Bluetooth devices
   A. Transmit data over short distances
   B. Transmit data over long distances
   C. Use a system of cables to connect devices
4. Bluetooth thermometers add
   A. Controllability, convenience, and accuracy of reporting
   B. Controllability, convenience, but inaccurate reporting
   C. Convenience, accuracy of reporting, but lack of controllability
5. Bluetooth temperature monitoring devices/sensors can aid in
   A. Employees not getting fired
   B. HACCP compliance
   C. Not having to comply with HACCP
6. Two of the five CDC Risk Factors that a Bluetooth temperature-measuring device can help control are
   A. Personal hygiene and improper holding temperatures
   B. Hot holding and cold holding
   C. Improper holding temperature and improper cooking
7. HACCP (Hazard Analysis Critical Control Point) is
   A. A proactive program used by the food industry to ensure that consumers have a product that is safe for consumption by preventing, eliminating, or reducing risk of foodborne illness
   B. A proactive program used by the food industry to ensure that consumers have a product that is safe for consumption by eliminating all risks to the food
   C. A reactive program used by the food industry to ensure that consumers have a product that is safe for consumption by preventing, eliminating, or reducing risk of foodborne illness