

Automatic Attendance

A Guide for Buyers

Everything you need to know about attendance automation:

What are the challenges of tracking attendance?

What you need to consider when automating attendance?

What are the different ways attendance can be automated?

What are the strengths and weaknesses of each system?

Automated Attendance Buyer's Guide

This guide focuses on the technology options available for automating attendance tracking. This guide will be valuable if you're evaluating attendance automation options, whether you want to track attendance as a whole, by session, lecture or lab.

Why is Tracking Attendance Important?

- **Funding** - Funding is based on student attendance in many states. Being able to correctly collect and report this data ensures that the deserved funding is received.
- **Grading** - With an automated system, it is easier for students to be aware of their attendance record for a particular class, and be sent notifications if their absences are beginning to impact their grades. It may be that teaching staff believes attendance should be used in grading, but have avoided implementing it due to the time it would take away from teaching.
- **Resource Utilization** - Accurate information on how many students are using each room at any time enables you to know which rooms are vacant, under-utilized or over utilized and when. Resource utilization can help with planning and time-tabling.
- **Student Retention** – Achievement and attendance is correlated. It makes sense that students who attend more classes are better prepared. Knowing which students are late to class or skip class, helps you to target your early intervention activities. Students who succeed are more likely to complete their qualification or continue their studies with you.
- **Sports Programs** - Manage planned absences for students that are excused to attend sports programs. Coaches can mark in advance when students will be required for sports, and the attendance system can mark those students as excused from class in advance preventing them from being marked as absent.

The Challenges of Manual Attendance

- The teaching staff may misplace the attendance paper or excel file they were using.
- Attendance records are not available in real time.
- Teaching staff loses a lot of time taking attendance manually.
- Classes can be disrupted by a late student, as teaching staff must stop and record the student as late.
- Teaching staff don't want to take attendance; some of them don't feel like it is part of teaching so try to get it over and done with as fast as possible, risking accuracy.
- Staff must be present to record attendance, meaning resources such as libraries and resource rooms will not record student attendance.
- The larger the class, the greater the challenges.

Reasons to Automate Attendance

- **Save Class Time** – a worthwhile automated attendance system can operate without any action from staff or students.
- **Administrators can see real-time, accurate attendance** - all personnel involved in student success can access real-time, accurate information.
- **Accurate attendance information** - No more time spent emailing staff to complete attendance.
- **Federal Financial Aid Compliance** – *Last Date of Attendance* reports can be automatically run from certain automated attendance systems. This makes federal financial aid compliance more seamless.

The Attendance Technology Landscape

There are a variety of technologies which may help to track student attendance. Some of these options do allow for students to circumvent the attendance system. Our experience has shown that only a small subset of students would actively try this. Deterrents such as having staff in the room when the scanning is taking place, significant penalties, or random headcounts can all be easily implemented.

NFC / RFID

A small contact-less tag that can be built into student identification cards, key fobs, and even stickers. These allow students to scan their cards without removing it from their wallet or lanyard. This makes it possible to scan several students within a short time. As these tags are connected to low value items, students have no qualms about handing their friend a lanyard or card to scan them into class.

Magnetic stripe

Technologies like [Presence.io](#) use a magnetic card reader to read the magnetic stripe on a card. This will cause delays when many students are trying to get into a room or event. Students will also have to get the card out of any holder to run it through the reader, causing wear to the card. There are clear issues and costs associated with printing original cards and replacing lost and stolen cards.

Barcode / QR code

Use of a camera or laser barcode reader can also cause delays at classroom entryways. Sometimes barcodes can also be difficult to scan. The cards need to be orientated a certain way, and may not work if in a plastic holder.

Bluetooth

FletchApp.com is the leader in Bluetooth based attendance technology. Such technologies typically work by placing a Bluetooth beacon within each classroom or location that you want to track attendance in. As students enter the classroom, the Bluetooth beacon detects the presence of the student's phone. There is extensive research on the concept of nomophobia which indicates that students have an overreliance on their phones and are thus disinclined to forget their phone, allow their phone to discharge or hand it over to someone. Most importantly, this technology only works when the student is within the classroom and is therefore perfectly in respect of student privacy and GDPR.

Privacy Invasive Attendance Technologies

Biometrics (Fingerprint and Facial Recognition)

Can be accurate and fool-proof. However, biometric systems can be slow and cause queuing. Undoubtedly, there will be concerns about storing personal biometric student data. In Europe, the General Data Protection Regulation (GDPR) has brought about the end of such invasive technologies being applied to attendance related uses. This is to say that a fingerprint is too sensitive a data point to be used for an application as trivial as daily attendance. Or, by an institution not equipped technologically to truly protect such a sensitive piece of information. Further, facial recognition has not advanced enough to make face recognition a cost-effective method of attendance tracking. Options include having a camera monitoring entry points or a camera which can scan a classroom.

Geolocation/Geo-fence/GPS

Technologies like Arkaive.com use GPS which is privacy invasive. The technology is pinpointing the student's location at all times—including when the student is at home or elsewhere. While this removes cards from the equation, it adds privacy concerns to the equation. This technology works for building or school attendance, but not class by class as GPS is not accurate enough for class by class attendance.

Technology	Ease of Implementation/Maintenance	Does it cause queuing/waits?	Location Accuracy
RFID	Poor	Decent	Excellent
Magnet Stripe	Poor	Poor	Excellent
Barcode or QR Code	Poor	Poor	Excellent
Biometrics	Poor	Poor	Excellent
Geo-fence	Excellent	Excellent	Poor
Bluetooth	Excellent	Excellent	Excellent

Attendance Tracking Hardware



Laptop connected to scanner via USB cable

USB scanners can read magnetic strip, barcodes and RFID. The challenge is that the laptop cannot be left unattended as it or USB hardware can be stolen. Further, such methods typically require that the laptop is open and does not ‘go to sleep’, which means records are up and easily accessible for tampering. Finally, this kind of a solution is not scalable.

Tablet/Smartphone Based System

Mobile devices can be used to automate your attendance by reading bar or QR codes with the device’s camera. With the right app, these can be translated into attendance recording devices.

- A good mobile option if you are using one device to record attendance in different locations.
- Cannot be left unattended
- Requires updates and charging

Specialized Attendance Scanners

- Hardware device, requiring no updating or maintenance
- Wall or desk mounted
- Requires integration into your institution’s internet.
- Can be left unattended.
- The vast majority are designed for tracking employee attendance (time clock). This means many hardware devices are slow and not designed to integrate with educational systems.

Hardware Types

Unit Type	Considerations
Accessory (Connected to a computer via USB)	This option requires a computer for every scanner/reader. The chances of failure double, as you have the PC and the scanner to keep running.
Standalone Unit (Network/Internet connected)	Standalone units transfer automatically through the institution’s internet. If the internet goes down or is updated this unit will fail to transmit attendance records.
Mobile Device (with RFID built-in)	It is mobile, allowing for attendance to be recorded outside of the classroom environment. Any mobile device with a camera can read barcodes and QR codes, most android devices now contain a built in RFID reader as well.

Buying soon? Things to consider

These are the questions to ask and points to consider as you navigate towards a solution. You don't need to know all the answers right now. It will help to be aware of what may be asked of you.

- If you plan to use cards for students to scan in and out, how will you manage the cards, and those that are not scanned? There needs to be awareness of which cards have been assigned to which students.
- If you are already using cards, consider if they will work for automating attendance. Are your cards RFID/ NFC and do they support a common protocol such as MIFARE® or FeliCa®?
- How will new replacement cards be handled?
- Do you need to track attendance for each individual classroom?
- How will attendance be recorded for students who lose their cards?
- What kind of triggers and actions do you require as a result of attendance? Do you need absences to trigger notifications of some kind?
- Do you need to be able to disable or override the automated attendance (and notifications) on short notice for snow days or cancelled classes?
- How many rooms/locations do you need to take attendance in? What size are they?
- Is your technical staff willing to do the work to integrate an attendance technology with your ethernet or Wi-Fi?



Founded in 2014, Fletch has developed effortless solutions for automating attendance tracking. We have developed a privacy respecting, low cost, effortless attendance technology that can work without integrating into any of your existing systems (wifi, ethernet, etc).

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