4 Types of Race Timing Systems
When thinking about purchasing or building an RFID Race Timing system, one of the first things to consider is the software – primarily will you:

(a) Write your own software  
(b) Purchase an Out-of-the-Box software solution

The type of hardware and tags used with your system will depend greatly on the software option you choose. There are pros and cons to each method, and the more you know about each, the more informed decision you can make when deciding to buy or build an RFID Race Timing System.

Below is a brief comparison of the two basic types of RFID Race Timing Systems - Do-it-Yourself (DIY) and Out-of-the-Box Software. Out-of-the-Box Software is further subdivided into three types, One-Time Fixed Cost, Pay-As-You-Go, and Contract Systems. Continue reading to learn more about each.

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The upfront costs in an RFID Race Timing System are generally defined by the costs of purchasing the initial system. Ongoing costs, like licensing fees and disposable RFID tag costs, are not included in the calculation. Some systems have high upfront costs, but low variable costs.

Variable costs are ongoing costs like licensing fees, disposable RFID tag costs, and replacement equipment. Some systems have low upfront costs, but high variable costs.

Upfront RFID Knowledge Needed is the amount of RFID background and knowledge the buyer should have before purchasing the system. In DIY systems, for example, the buyer must either already have a working knowledge of RFID or be willing to conquer a steep learning curve in order to set up and create the software and system. On the other hand, Contract Systems do not usually require a large amount of RFID knowledge before purchasing because they usually include training courses, videos, and other training aids.

The four outlined systems are ranked by overall flexibility which includes both software flexibility and hardware flexibility. The general level of flexibility of a Race Timing System is determined by the race timer’s ability to adjust his/her system in response to race changes, environmental changes, or changes in preference. Systems with the highest level of flexibility, such as DIY systems, are able to be altered over time into a custom system that fits you and your races.

All systems generally have some variation of hardware support because most RFID readers include manufacturer support. However, since Out-of-the-Box systems contain a software component, they typically include various levels of ongoing support.
A Do-It-Yourself RFID Race Timing System is different from an Out-of-the-Box system because the purchaser develops the software (or contracts out the developing to a software engineer). Creating custom race timing software, for some, is very rewarding because you can customize it to perform exactly how you see fit. DIY Race Timing Systems allow the buyer the freedom to mix and match different pieces of hardware to create the “perfect system” for their needs.

Most problems with a DIY system usually stem from the lack of knowledge of both RFID and software it takes to build and support a system. Because this system is pieced together, there should always be someone at each race with knowledge about each product and the software in case of problems. DIY systems usually cost less than Out-of-the-Box systems, but you have to take in consideration the cost of building the software, or paying someone to.

An important strength in using a DIY system is the ability to change the system at will based on additional needs. If there is a change in read zone width or height brought on by environmental changes, DIY systems have the ability to add or subtract pieces of hardware in order to provide the exact amount of coverage for the new course. Such flexibility with both the amount and type of hardware makes this type of system very popular. Furthermore, although there can be significant upfront costs associated with designing your own software, this option can provide users with substantial functionality and flexibility to do things like incorporating cameras or building custom API integrations to other software systems. Most notably, in the long run, a DIY system can have very low variable (per runner) costs because you can buy tags on the open market and avoid software licensing fees. Thus, in high volumes, a DIY Race Timing System can be economical.

To learn more about DIY race timing systems, check out our eBook A Guide to Building Your Own Timing System.

“... The beauty of developing your own software is the flexibility to tailor your race to your specific customer and race director. The only downside to this would be that software development takes time; however, once it is complete, you have no licensing fees. This is a piece of intellectual property that you own and can sell or provide as a service.

RICK WILLIAMS, SENIOR SALES ENGINEER

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Companies who make Out-of-the-Box Race Timing Systems are essentially software companies. They may provide a large range of services that help enable them to sell their systems, but a system’s unique qualities are usually derived from its software. Most companies that sell race timing systems have not developed their own RFID hardware (with a few exceptions). Instead, they repurpose general RFID readers, antennas, cables, and tags into branded, specialty race timing equipment.

One caveat is that the customized cases in which many companies house their RFID readers have been designed by them. These cases are customized to contain specific elements like batteries, wireless routers, or even cell receivers to enable networking.

There are three main variations of Out-of-the-Box Race Timing Systems that are differentiated by their pay structure – One-Time Fixed Cost Systems, Pay-As-You-Go Systems, and Contract Systems.

“An Out-of-the-Box Race Timing System is great for people who don’t have the time or the skillset to develop or test software. They need a quick, easy solution. The biggest downside to this system is that you will have to pay a company upfront fees and possibly on-going licensing fees.”

RICK WILLIAMS, SENIOR SALES ENGINEER
ONE-TIME FIXED COST SYSTEM

One-Time Fixed Cost systems are frequently hardware agnostic, meaning that the buyer purchases software rights that can work with a variety of RFID hardware options. Specifically, the software communicates with the RFID reader using LLRP, or Low Level Reader Protocol, which enables them to work with most enterprise-level RFID readers.

Companies that sell these systems cater to a slightly more tech-savvy customer who is capable of sourcing RFID hardware and tags and is willing to take ownership of the race timing process. Once these systems are purchased, there are no ongoing software costs or licensing fees. The only variable cost is likely to be the cost per tag (if disposable tags are used).

PAY-AS-YOU-GO SYSTEM

Pay-As-You-Go Systems may or may not be hardware agnostic. Some companies sell their software in a complete system that includes hardware, while others are content to only sell software and allow customers to choose their RFID hardware. These systems do not have an associated annual services contract or support fee, but they do charge a software licensing fee each time that the system is used.

One advantage that these systems have over a “One-Time Fixed Cost” system is that the software company has an incentive to support their products and continue to improve them. This is because a significant portion of their revenue comes from the customer’s continued satisfaction.
CONTRACT SYSTEM

This type of system is a full services contract between the race timer and the race timing company. This means that the system is associated with significant training and ongoing support while also frequently locking down the race timer to using tags and hardware purchased directly from the race timing company. Because you must use the company’s tags and hardware, both fixed and variable costs for this option may be high, but they are great options for “high-stakes” races where professional runners or significant cash prizes may be distributed.

To learn more about Out-of-the-Box Software Systems, do not hesitate to contact us for more information.
Founded in 2008, atlasRFIDstore is a trusted source in the RFID hardware industry. We are a global retailer providing customers a secure, one-stop location where you can buy RFID components for your own systems and applications.

atlasRFIDstore sells name-brand products in virtually every RFID hardware category, so you can build cost-effective RFID solutions across a variety of verticals.

The atlasRFIDstore team focuses on creating the absolute best customer service experience and works with you to select the right RFID equipment for your systems.

Our sales engineers are highly trained in the field of RFID and are ready to answer your questions, big and small. While we may not immediately have an answer, we’ll diligently work for you to find a solution.

Our offices are located in the Innovation Depot, a technology hub in downtown Birmingham, Alabama. We have customers all around the globe and ship products worldwide.
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