

# Young Offenders, Electronic Monitoring, Cell Phones, and Battery Life

By Shubha Balasubramanyam and Jethro Antoine\*

*The Center for Court Innovation in New York City recently piloted an electronic monitoring program for young people aged 16-18 who had been charged with felonies. Instead of traditional ankle worn monitors, the “Stay on Track” program employed smartphones, although the phones were “tethered” to a small ankle unit to ensure the device was always in the juvenile’s possession. While the program did not meet all of its goals, the project team learned a number of useful lessons about the advantages and disadvantages of phone-based monitoring with this population. This article shares their experiences.*

## The Challenge: An Overcrowded Pretrial Detention System

Over the last decade, pretrial detention has become the focus for New York City’s justice reformers. The New York State Unified Court System, the Mayor’s Office of Criminal Justice, Human Rights Watch and others had documented serious delays and overcrowding in the system—thousands of individuals were being detained in the city’s jails while their cases were pending. Worse still, many of these detainees were being held because they could not post even modest bail amounts. These individuals had not been found guilty of a crime, and ultimately many would have their cases dismissed. So there was significant interest, both among justice stakeholders and the general public, in testing the effectiveness of new interventions. In particular, there was an immediate interest in addressing the plight of the most vulnerable defendants, juveniles. For a complicated set of factors, these young detainees often endured the longest jail stays.

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In 2015, the District Attorney’s Office of New York County expressed an interest in piloting electronic monitoring technologies to monitor compliance with orders of protection, curfews, and other release conditions, such as school or treatment attendance. Until then, the city’s reform initiatives had not seriously considered the role technology might play in reducing the detention backlog while ensuring defendants met their court obligations. The Office of the District Attorney, the non-profit Center for Court Innovation, and the Open Society Foundation collaborated to explore a simple proposition: Would state-of-the-art technology, combined with other program elements—community-based services, case management, monitoring protocols, training in the latest research in such topics as trauma, brain development and procedural justice—result in a truly effective and transformative intervention for these young adults?

## The “Stay on Track” Program

Until 2017, New York State had been one of few remaining jurisdictions where juveniles aged 16-17 could be held criminally responsible as adults. With the introduction of the “Raise the Age” initiative, 16- and 17-year-olds accused of misdemeanors—who make up the large majority of juveniles arrested—would now have their cases handled in Family Court. Nonviolent felony cases would still start in Criminal Court, albeit in a new section known as “youth part” and in front of judges trained in Family Court law.<sup>1</sup> And young defendants, rather than being held in adult jails and prisons, would be placed in specialized juvenile detention facilities certified by the State Office of Children and Family Services in conjunction with the State Commission of Correction. Before this change in policy, young people could be housed in segregated units in adult detention facilities, where they faced a greater risk of being involved in a significant

assault, being a victim of sexual violence, and committing suicide.

In tandem with this policy change, New York City stakeholders were committed to finding ways to ensure that young people could remain part of the community, in contact with family, school, and friends, instead of isolated in juvenile detention. While “Raise the Age” was being debated in early 2015, the Manhattan District Attorney launched the Stay on Track pre-pilot to explore whether electronic monitoring could help further ensure the release of more young adults from detention. Stay on Track was designed for participants aged 16-18, charged with a first felony, who would otherwise be held in custody. Defendants would enter the program post-plea with the understanding that they would achieve Youthful Offender<sup>2</sup> Status upon successful completion. In addition to regular meetings with their case manager and social service agencies, participants were mandated to appear in court for a monthly compliance check. Their participation was projected to last 3 - 6 months.

## Setting Priorities

Our approach to this project was to prioritize participant need and effective engagement rather than optimizing the implementation of the chosen technology. It is an important distinction: when an electronic monitoring program runs into unexpected problems, the temptation is to blame the equipment, and to devote the trouble-shooting effort to fine-tuning the technology’s implementation. Sometimes that makes sense. But if the focus is on the technology, it may take too long before you recognize that a technology-based solution may not be the right fit for the goals you are trying to achieve.

The case management and clinical program elements were created by the Center

*See BATTERY, next page*

*BATTERY, from page 4*

for Court Innovation, a nonprofit with extensive experience working with justice-involved youth. Each young person was connected to social service and clinical resources that met their risk level and needs, ranging from job readiness programs to higher touch therapeutic programs.

From the outset, the project was not designed to focus on enrolling a large number of participants, but rather on observing the general impact, operational efficiency, technological feasibility, and desire for such an intervention amongst the various stakeholders including defense attorneys, judges, partner non-profit agencies, and prosecutors. We only wanted kids in the program who wanted to be there and who could benefit from it. The low number of participants allowed the team to pivot quickly based on what we were learning—which proved to be incredibly useful given the issues we encountered with the technology and how these issues impacted our main goal, which was positive programming. The observations we discuss here are based on the experiences of five participants, the reflections of staff at the Midtown Community Court<sup>3</sup>, and our analysis of the data generated from the participants' devices, as well as frequent communication with different stakeholders, and the participants' family members.

The Center for Court Innovation's clinical and technology staff worked closely with a Senior Prosecutor from the Office of the District Attorney and social service providers for this project. The clinical staff supported the young participants in understanding their needs, following their progress as they engaged with other programs, staying in contact with the family and other support, and being the primary point of contact for participants' attorneys and prosecutors. The technology staff was tasked to understand the data from the GPS, troubleshoot the technology, and change the technology protocols to meet the needs of the stakeholders.

### Choosing the Technology

At the outset, we wanted to agree upon a core set of needs that could be improved if automated. Typically, with young people

in general supervision programs, our staff verified participant compliance by contacting school administrators and other case managers to confirm attendance records, and speaking with family members to confirm a participant's compliance with curfew obligations. For this program, the goal was to see whether we could replace some of these "manual" supervision methods with an automated system. We decided that the traditional ankle-worn GPS tracking device used for most adult offenders (and many juveniles, too) would be too stigmatizing and inflexible for our population. Instead, we wanted to explore newer, less physically intrusive technologies employing the capabilities built in to

cealed. It has no GPS capabilities; its function is solely to ensure that the cell phone is within range of the person. Both the cell phone and ankle bracelet would vibrate and emit audible alerts when they were separated by more than several feet. The technology represented a compromise between security and flexibility: when the phone and ankle unit were separated, we were alerted, but without GPS we were unable to determine the location of the individual from the ankle bracelet, only the phone. Our team assumed that since young people are so dependent on their cell phones, they would never want to walk away from it and would always keep it charged. On the positive side,

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***Traditional ankle-worn GPS tracking would be too stigmatizing and inflexible for our population. We wanted to explore newer, less physically intrusive capabilities built in to smart phones.***

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smart phones. Unlike many monitoring programs, the project's operating budget would bear the full cost of the devices and monitoring, and no fees were to be assessed the participants.

We selected smartphone tracking because it seemed to be the best option available to efficiently and accurately ensure that the young people we enrolled were adhering to the mandates of their release: going to school, attending programs, sticking to curfew, and staying away from certain neighborhoods or blocks identified as problematic.

We launched the project with a two-piece electronic monitoring device—a cell phone tethered via Bluetooth to a small ankle bracelet. For the GPS tracking to be functional with this type of technology, two things had to be true: (1) the cell phone had to be on and charged; and (2) the cell phone had to be within the range of the participant's ankle bracelet. Many researchers worry that the social and psychological impact on a young offender of wearing a visible electronic monitoring device may negatively impact their compliance.<sup>4</sup> The ankle bracelet in this technology is small and easily con-

foregoing GPS in the ankle tether optimized the battery life of the unit. In fact, throughout the life of the project, the ankle bracelets did not require charging. It also allowed for an ankle bracelet that was smaller and less cumbersome than the traditional ankle bracelet.

### The Day-to-Day Interactions *Supervision*

Each young person was supervised by a caseworker with clinical training and with the assistance of social workers or caseworkers at other agencies providing needs-based services. The Center for Court Innovation's technology staff monitored the GPS tracking data in detail. Each day staff would review alerts that had come in the day before and review them alongside a system-generated map that depicted the participants' movements and identified important locations (e.g., schools, home, job locations, other agencies serving the participants, and bounded areas the young people had been instructed to avoid). Staff analyzed these reports to

*See BATTERY, next page*

*BATTERY, from page 5*

confirm their accuracy and to identify any red flags in the GPS points. Given that the project's staff were very familiar with the city and the public transportation system subway, they were adept at identifying GPS coordinates or participant movements that appeared inaccurate or defied logic.<sup>5</sup> Analyzing and confirming the accuracy of this digital audit trail was an incredibly time-consuming process requiring regular and significant communication between the technology team, social workers, and the participant and their family members.

Once we started encountering issues with young people charging their phones, we began to download all available battery

### **Bumps In the Road**

We encountered several issues using this technology with this young population in New York City. Most of the problems involved the batteries, but there were a few other issues worth noting.

First, the addition of the two-piece GPS system meant there were more alerts. Frequent alerts were disruptive to the young person, but also time-consuming for staff who had to follow-up on each one. Participants received on average four alerts per day, but some generated up to 30 alerts per day. Only 5% of the alerts were generated by an accurate reading about a participant's location (meaning they were absent from school or curfew, or had entered an exclusion

have their phone in class, and the frequent, audible, alerts meant that they stood out. This also required informing each teacher about the student's participation in the program, although generally, teachers would not necessarily know these personal details about the student. The alerts at times frustrated the teachers as well. In one case a teacher became so irritated with the constant beeping that the student was told to leave the classroom. We resolved this issue by turning off alerts during the participant's school hours—but then students could not be alerted if their phone was out of range or if their batteries were running down.

Lastly, while the ankle bracelet was smaller than a traditional GPS ankle bracelet, even this size caused problems. The ankle bracelet limited the clothing options available to the participants. If you've spend any time with teens you know that deciding what to wear is an important part of their sense of individuality and promotes their self-confidence. These limitations also presented practical restrictions that operated to exclude them from activities, like being unable to wear sneakers for gym class. For others, winter boots were almost impossible to accommodate, a significant problem in New York City.

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data, and graph them to understand trends. The technology team would triage any questions, concerns or issues with the caseworker to identify them as user error, violations, or technical issues. Together, the technology staff and caseworkers would tweak the protocols of the GPS tracking—inclusion and exclusion zones, time passing before alerts, etc.—as we learned more about how the technology performed in the real world.

### **The Young Person**

To enter the program, the young person had to sign a contract agreeing to abide by specific requirements—e.g., school/work attendance, meeting with their case manager, complying with curfews, as well as their interaction with the technology. The technology pledge included keeping the ankle bracelet on, keeping the phone on and charged, keeping the phone beside them at all times, and responding to any alerts immediately. They would be responsible for complying with their mandates, as well as calling the technology service center when there were false alerts and helping troubleshoot any technology issues.

zone). The other 95% were related to a lack of cell or GPS signal, false tamper alerts, false tether breaks, inaccurate location, or low or no battery charge.

In fact, 75% of the location alerts were found to be false. The inaccurate location readings were due to many factors in our urban, built environment. For example, the schools our participants attended were quite small, specialized schools, so the school inclusion zone had to be very small, causing many false non-attendance alerts. Also, the low-income housing that many of our participants were in had notoriously bad GPS and cell reception; coupled with major drift experienced at night, we had many alerts generated while the participant was sleeping. Eventually we adjusted the protocols to discontinue alerts at night and making large inclusion zones around schools and home, and a generous number of "inaccurate points" before creating an alert.

Also, many schools in New York City do not allow students to use cell phones during classroom hours. So, although part of the purpose of the cell phone was to reduce stigma, each student in the program had to have special permission to

### **The Never Ending Battle to Stay Charged**

Low or no battery alerts were a significant part of the number of alerts we had to deal with, representing 37% of the total alerts. In addition to issues with the hardware, we immediately saw that keeping the cell phone charged was not an easy task for many of the young people in our program and that diagnosing charging issues was very time-consuming.

From the very beginning, it was apparent that there would be issues with charging the phones. Without having adequate data, it seemed as if the young person was not keeping the phone charged, and that they were not adhering to the program's requirements. In some cases, we asked teachers or therapeutic program staff to assist the participants

*See BATTERY, next page*

BATTERY, from page 6

with plugging in the phones to ensure they were being charged—this created tension as many of these programs and schools did not want to be responsible for monitoring their students’ compliance. Ultimately, once teachers and parents were willing to confirm that the phone had indeed been plugged in, we were able to review minute-by-minute charge level data for the phones. Graphing this data revealed that there was a frequent fluctuation of the charge that could not be user error—a toggling on and off every few minutes. While our technical team agreed this could be for many reasons, including issues with the outlets themselves, it was ultimately determined that in this case there was a problem with the hardware.

After replacing the hardware, new issues arose. The cell phone hardware was working well enough but it became evident that the young people were using their phones the way most young people do—to play games, watch videos, stream music—and that was depleting the battery life. Disabling these functions solved the battery life problem, but led to yet another one—the point of using the cell phones for GPS tracking to begin with was that teenagers were already very comfortable using their phones, and monitoring could piggyback on that familiarity; now we

would have to deprive them of important functions they valued.

As we continued to monitor daily battery usage, for some of the teenagers we found patterns that showed that despite fully charging their phones each night, the phone’s battery depleted quickly during the day and resulted in the phones needing to be charged by midday. Charging during the day is problematic for many students since the phone must always remain near the ankle bracelet and there are school policies against cell phones—the young person would have to work with the school to be able to sit near their phone, in an administrative office during breaks, while it charged. Often there wasn’t sufficient time, in these instances, to obtain a full charge, so the young person would need to frequently charge the phone for short intervals throughout the rest of the evening.

Chart 1 shows an example of a battery life over a day. Although there is a full charge at 6:30 am, by 10:30 am the phone is at only 25%, which means that battery alerts will begin while the participant is in class. By noon, the phone battery is depleted, and therefore the participant is not trackable. For some participants, they did not charge it at that point leaving hours where they were not trackable, but for others—such as the participant shown in chart 1—they made a best effort to charge it for short spurts. Because each

attempt provided a minimal amount of charge, from noon onwards there were frequent low battery alerts.

One of our operating suppositions was that, unlike an ankle bracelet, with GPS-tracking on the phone, a participant isn’t tethered to a wall outlet when charging a low-battery device. However, in the case of the phone + ankle bracelet technology, while you may not be physically tethered to an outlet, you can’t go too far from the ankle bracelet without generating a loud alert (this distance, in part, depends on the build characteristics of the home/apartment and whether or not you can enter another room without losing the signal to your phone, and on the device protocols).

Given our pre-pilot’s small sample size, we can’t be certain how much of the charging issues we observed were based on hardware, on the urban built-up environment where GPS can be hard to obtain, and on typical teenage cell phone use which can involve a lot of high-battery apps. But after experimenting with changing the settings on the phones, we believe that typical teenage use is the root of much of what we observed.

**What We Learned, Adapted and Changed**

Towards the end of this project, we decided to try a different device to see if it was a better fit for the young people. The new approach eliminated the ankle bracelet altogether. For our final participant, we switched to a cell phone only GPS tracking option with no ankle unit. It used regular, random check-ins throughout the day using voice verification to ensure the participant stayed with his phone. With this option, we encountered one glaring and important issue. On average, the participants received 4-6 random voice check-ins per day, and many were missed. Often the teen was preoccupied with other activities or was just not near the phone.

In numerous conversations with social workers and other professionals familiar with adolescent brain development, we know that teens can sometimes have great

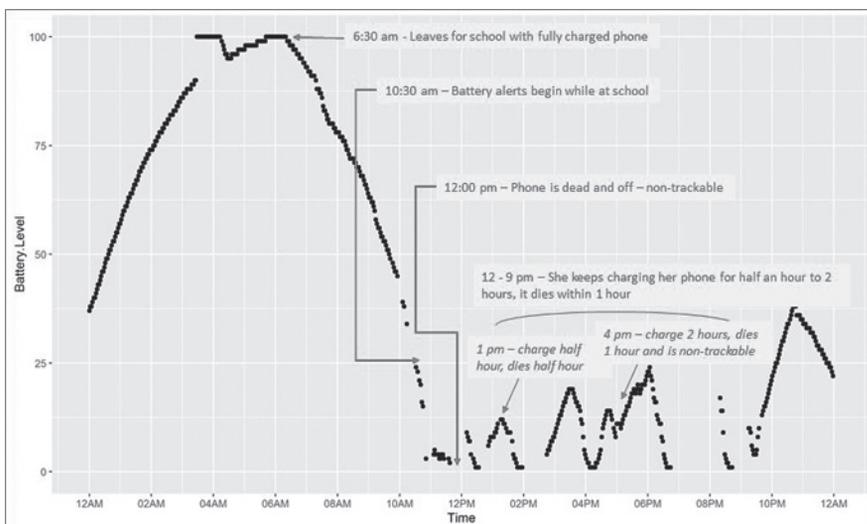


Chart 1: Sample battery life over a day

See BATTERY, page 11

difficulty following routines. Many alternatives-to-incarceration programs, quite frankly, already expect a lot from their young participants as teenagers—typically, they are asking them to keep a schedule with school, therapy, social activities, court cases, etc. The addition of keeping a cell phone charged, and not using it frequently, may not seem onerous on its own, but in the broader context of young people and their families having two sets of rules, these additional requirements may be enough to tip the scale towards a young person being noncompliant.<sup>6</sup>

## Recommendations

Although we learned a great deal from the pilot program, “Stay on Track” could not be termed a “success.” For kids between 16 and 18 years of age attending school in New York City, smartphone GPS tracking presented too many problems and provided too little benefit to replace traditional supervision methods. Our first recommendation would be to look at the least intrusive and complex solution that can meet the needs of a specific population. For example, less

intensive supervision options, such as automated random phone calls to confirm curfew compliance, would eliminate many of the problems we encountered. When 24/7 tracking is necessary, it is important to consider the behavior of the population and pick a technology that works for their day-to-day lives rather than get in the way of the ultimate goals—engagement with school, family, community, and social services and resources. While we generally expect technology to increase efficiency, in the case of GPS monitoring, it may make more work, not less; for that reason, it should be considered a supplement to existing practices, not a replacement for them. Indeed, where GPS monitoring is being considered as an alternative to pretrial detention, agencies should expect to add more staff, not less, to deal with the data GPS monitoring generates and the troubleshooting issues that technology inevitably raises.

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## Endnotes

<sup>1</sup><https://www.nytimes.com/2017/04/10/nyregion/raise-the-age-new-york.html>

<sup>2</sup>In New York State, a person charged with a crime when they are at least sixteen years

old and less than nineteen years old are recognized as a “Youth.” Youthful Offender status can be granted at sentencing in the interest of justice and includes the automatic sealing of the youthful offender’s criminal record.

<sup>3</sup>The Midtown Community Court, an operating project of the Center for Court Innovation, is one of the country’s first “problem-solving” courts. It provides an array of services to tens of thousands of individuals through its comprehensive onsite social services clinic, fatherhood and workforce development program, and community restitution program.

<sup>4</sup>Sklaver, Stacey L. 2010. “The Pros and Cons of Using Electronic Monitoring Programs in Juvenile Cases.” Juvenile Justice Committee Newsletter, No. 5. Washington, D.C.: American Bar Association.

<sup>5</sup>On one occasion a GPS report suggested a candidate had traveled along a path, and at a velocity, that could have only been accomplished by a fictional superhero. This was ultimately identified as an anomaly attributed to a participant who remained at rest for an extended period and the movement of the GPS satellites.

<sup>6</sup>U.C. Berkeley School of Law’s Samuelson Law, Technology & Public Policy Clinic and the East Bay Community Law Center. (2017). *Electronic Monitoring of Youth in the California Justice System*. Retrieved from: <https://www.law.berkeley.edu/experiential/clinics/samuels-law-technology-public-policy-clinic/resources-and-publications/privacyandsecurity/electronic-monitoring-youth-california-justice-system/> ■



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