

Q&A: Environmental & Sustainability Spotlight on Houston-Based SmartAC.com

By Charles Craig, Senior Vice President, Environmental & Sustainability Practice Leader, GulfStar Group

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Andrew Fuselier



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*Heating, ventilation, and air conditioning (HVAC) is the largest operating expense in most homes, and yet most households pay little attention to it until there is an issue says **Andrew Fuselier**, COO and Co-Creator of SmartAC.com. GulfStar's **Charles Craig** interviews Andrew about SmartAC.com's remote monitoring technology and its potential environmental impact, cost-saving benefits and growth strategy.*

Q: Tell me about SmartAC.com

SmartAC.com is a Houston-based hardware and software platform for remotely monitoring residential HVAC system performance. We launched out of stealth mode officially last year, and we believe that by the end of next year, we will be in over 100,000 homes and have the largest residential HVAC data set in the country.

Q: While you were in stealth mode, what resonated most with prospective investors?

What resonated most with prospective investors is that the value we deliver is clear. Just about every investor has had the experience of an HVAC system going out in the middle of the summer, Googling for a contractor, having the first two companies they call be too busy given how many other systems are going out on that same hot day, and then when someone can finally come out, realizing they are going to pay whatever they're told with no idea if that's a good/fair price or not. It's a bad feeling. There's no visibility beyond a binary "it works/it doesn't work." And that's bad for contractors, too!

Imagine if they could see issues that are arising weeks or months before those problems lead to a system shutdown, and then go fix those systems during the months when they have extra capacity compared to the summer when they are telling the person who calls up that they're too busy that day and losing the business.

This isn't "let's serve up data and hope someone can monetize." There's a clear problem for everyone and we have a clear solution worth a lot of money.

We built a system that's DIY-installable in 10 minutes by a homeowner following an easy video-guided app (or five minutes by a technician). Simple battery and magnet-based solution – no wires, screws, etc. We made a product that could get into homes at scale. It's an easy solution that works for the 68 million homes with central AC and heating and is compatible with any thermostat.

Q: "What gets measured gets improved" is a common axiom, but how does SmartAC.com reduce environmental degradation?

Air conditioning is one of the largest contributors to greenhouse gas emissions. Residential HVAC accounts for about 6% of all energy usage in the U.S. Remote monitoring enables actions that can reduce that by 20%+ over time – that's over 1% of total electric use wasted on this one thing! There are a lot of great people and companies out there working on solar, energy storage, electric vehicles (EVs), and other "sexier" projects. We think the biggest environmental bang per dollar invested is in helping eliminate waste from the largest source of energy consumption for most households.

The silent actor here is refrigerants. The two most common refrigerants in U.S. HVAC systems, R22 and R410, carry global warming potential (GWP) of 1,810 and 2,088, respectively, meaning each pound of refrigerant = ~1 ton of CO₂ from a global warming perspective. Traditionally, refrigerant leaks aren't detected until a) the system can no longer provide comfort to the homeowner, or b) a service tech makes a spot or bi-annual service visit and installs gauges

on the system. In both cases, the leak may have been ongoing for months or even years. Losses of 30% to 80% of the refrigerant are not uncommon. With SmartAC.com, we can detect very small changes in performance to indicate a refrigerant problem. This enables our service partners to address refrigerant leaks after only ~10% has been lost, mitigating further losses. When you consider that the average residential HVAC system uses between 3 and 12 pounds of refrigerant, the impact of capturing leaks earlier is significant.

Q: Bridge the gap between measurements, data mining, and real-world behavior for us.

SmartAC.com hardware measures six variables directly. We also gather OAT (outside air temperature) and RH (relative humidity) via an external weather API (application programming interface). In parallel, we gather the specification data of a given system via the condenser nameplate, using OCR (optical character recognition). A proprietary AI bot scrapes the web for additional operational information.

With these data points, we calculate or observe many other variables: Cooling/Heating Performance, Cycle Type, Cycle Time, Total System Run Time, Building Envelope Performance, Occupant Setpoint and Schedule Behavior, etc.

The data is then passed through a variety of logic and algorithms to test for a number of indicators of system health. Any anomalies are recognized as Events. If enough Events occur in a given amount of time and frequency, specific Alerts are generated. We employ several Machine Learning methodologies to recognize recurring signatures and incrementally improve detection over time. In the "real-world," alerts are further qualified, and if validated, specific actions take place for Members and Partners. Once Alerts are validated, a Lead is created. Leads are then passed to partners via our Partner Dashboard for the Members under their account. Partners can reach out to their customers to schedule service and address the issue.

Q: Now that you're out of stealth mode, what is next for SmartAC.com, and how supportive has the Houston investor community been to your start-up?

In the near-term, our goal is to continue our rapid growth through our many channel partners. COVID-19 has certainly been a challenge on the supply chain front, but we're on the other side of that now.

What was considered "alternative energy" even up to a few years ago is now just "energy." For example, there are no new coal plants being built in the U.S. and 16% have been retired in the past five years. It's not simply that the energy has to *come from somewhere*; those dollars that previously went into traditional energy assets have to *go somewhere*. Houston is a huge source of energy investment in the U.S., of course, so there is a natural expansion into sustainable energy assets by the community here.

We are excited to be a homegrown part of that transition in the city and we've been very fortunate to raise a considerable amount of money from Houston high net worth individuals and institutional investors.