

VT Bus Tracker: “Where to from here?”

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As of this May, two of the three developers of the VT Bus Tracker (<http://bustracker.org>) will have graduated. So that begs the question we've been asking ourselves for some time, “Where to from here?”.

An ideal solution would guarantee life support for the system and the applications that we have built. At the bare minimum, current applications need to be maintained, bug fixes must be provided, support for the system overall in conjunction with any future changes from the Blacksburg Transit must be provided, and someone needs to be present to be the go-to person when problems arise, and to keep in continuous communication with our friends at the BT. This is not a small task.

Our first idea

The first idea we had was to put a student group around it. It seems easy; fill it with students, and they can continue to develop and maintain the VT Bus Tracker. However, many interested parties pointed out their concerns with this idea. Student groups fluctuate a lot from year to year. Even the leadership changes regularly. Every four years, no single face is the same. There is no consistency. Asking of professors to take away time to manage this group would require an unrealistic amount of their time on a project that does not pertain to their academic nor research areas.

(Side note: our faculty advisor for the project, Dr. Tilevich, began a huge project that branches off of VT Bus Tracker to incorporate the system in to introductory-level computer science courses to revitalize their ability to show the applicability and usefulness of the discipline, all the while teaching students much better about the concepts they are learning. This project has already received attention on the national stage in the Washington Post.)

Another issue with our first idea is that student group involvement can fluctuate greatly from year to year. While this is okay for most organizations, too little involvement one year would mean the minimum amount of maintenance and development required to keep the system running would not be met. One final issue raised is that since students have so

many other time occupations (school at the minimum, but often work and other organizations too), it would require a lot of students to pledge their time during the school year. This also means that a lot more time must be taken to train new students to the system (in Computer Science, a lot of time is required for one software developer to find out how everything works in code entirely written by other, and multiple, software developers).

Our second idea

It was apparent that our first idea would not be best for the project, nor the student body. As we were trying to figure out how to sustain the project, all three of us were realizing just how much we enjoyed developing the system. The intricacies of solving unsolved problems, developing these mobile applications, figuring out how to make live bus data useful to riders, and making our tools and interfaces the best that were out there all excited us. The only limitation of the fun was time and resources.

As representatives from universities and cities nation-wide began to ask about our system, we saw an opportunity. That opportunity is our second idea to make VT Bus Tracker continue to succeed even as we all graduate.

Our second idea is that we start a mobile software development company. If we continued to work on the system that we had built, spent the time and work that it would require to allow it to run at other universities and cities, then we would be able to sell it. If we could sell it, then the system would be funded, and we would have jobs, therefore we would be able to develop on it for the lifetime of the project, which hopefully, outlives us.

So what does this mean for me?

What would this mean for Virginia Tech? This would mean that the bus tracker for Tech would not only continue to get the maintenance and development necessary to keep it running, it would also get continual bug fixes, incredible new features, it would continually support new devices as the mobile devices of tomorrow start appearing, and all of this would be done by full-time employees supported by a well-funded business. Not only would the bare minimum requirements be met, we would be able to develop the system to new directions each year.

This idea is very clear to us. It is clearly optimal for the student body of both today's and tomorrow's Virginia Tech. The Blacksburg Transit no longer has to worry about the lack of support for the project, and are continually supportive of this new idea, as they will be helping us during our next steps to ensure even more faculty, students, and town residents will have access to an even better system.

A few benefits you will see very soon because of this new direction:

- Windows Phones will have a native app

- There will be a desktop-optimized browser client that works in Chrome, Safari, Firefox, and even Internet Explorer 7 and up!
- There will be a new version of all of our native apps which will be even better than what you had last August.
- The new mobile web app works on more than just iPhones and Androids - in fact, it works on every mobile device with a browser that can run Google Maps.
- ETA calculations will be run by machine-learning algorithms now, which basically means they will be dead on.
- You will be able to download and install the application from its respective store: App Store, App World, Android Marketplace, etc., for easier installation. (Plus: It will always remain free!)

In short, we have found the ideal solution. These are just a few examples, and we're excited to work on even more for you. Besides support for more devices and cooler features, you'll see much less bugs, and more. These things just aren't possible from a team that also has a school schedule and needs to volunteer their time for the project.

We're excited to get this process rolling so we can show you what we've been working on.

But wait, who owns all that code?

The project that we have been working on has been released with an open source license, which basically means that anyone could download all of our code, and continue to develop with it. Well, we're going to be one of those "anybody"'s. (The code is technically owned by the public domain. You can even download it and play with it too!) Once we've developed the open source code in to a new product, that new product no longer remains open source (but the original is always open source and available).

Okay, but isn't the bus tracker an SGA project?

Actually, no! The VT Bus Tracker began in January of 2009 (then called the BT-Tracker) in one of Dr. Tilevich's senior CS classes. After winning two top prizes at an undergraduate research competition over a year later in April of 2010, the SGA then led by Brandon Carroll voted to fund the project through August of 2010, when that contract was over. The contract had a list of deliverables expected from the team. We had this entire list completed, and did even more, before the contract was over in August. We owe a huge thanks to Brandon Carroll and the SGA for giving us the resources necessary to continue to develop the project last summer in to what it was in August. Since that contract has terminated, we have still continued to dedicate time to the project, as it still is a project in the CS department.

So then what happens to the CS department project?

The applications you have now, known as VT Bus Tracker, will cease to function in May, since no one will be supporting them anymore. Since the project's product is open source, what we're doing is taking the open source code, and continuing to develop on it. Therefore, you will see new applications as the product of this new project that you can download to use. Technically speaking, the CS department project is vacant, but the product that you use from it will be replaced by a far superior version, due well before the end of this (Spring '11) semester.

Our project that we have begun and will continue outside of the department will produce the applications for the Blacksburg Transit, as well as for other transit agencies. This project will be a great way for us to show what is possible, to continue to show off what can come out of Virginia Tech, tech's Computer Science department, and what is so important about computer science nation-wide.

What's the status on this new project?

Since the beginning of this year, we have been working with a marketing firm known as Snow. We've been trying to find out if this idea is possible; if it is feasible. The great people at Snow have helped us to begin this business and are helping us to market and sell the product that we are still working on. Getting the open source code from the VT Bus Tracker project to be able to work with multiple transit agency's is no small task, and a lot of time also has to be spent on making all of our applications better (which everyone in Blacksburg will benefit from in a huge way, very soon). So right now we're in the process of getting our first few transit agencies on board, after the Blacksburg Transit, and developing our new product. Once this phase is over, you will be able to download our project's applications which will, besides being much smoother, faster, and more feature-filled, allow you to not only track Blacksburg Transit buses, but will also allow you to track those of the agencies we sign on. So if you open this app in another town or city, it will automatically start showing you those routes and buses instead!

We are extremely excited for you to get your hands on what we've been working on. This level of quality and advanced features just isn't feasible from students volunteering part-time, but we've found the ideal solution to allow us to work full time on a project that provides you with the applications that you want.