In our town, there have been several instances of student drivers getting into crashes around their high school, including some fatalities. We did a public records request from the Town of Cary and after doing an ad-hoc analysis, we confirmed there is indeed a problem. We talked to the police and they are already extended in their duties, so we thought of a way we can help student drivers help themselves to stay safe.

So at the crux of our proposed solution what we have is an app that takes a behavior modification approach on the part of drivers; our motto says “Earning cash for driving safely paid by members that don’t.” So let me step you through it.

[Our app is cross platform and available on Windows Phone, Android and iPhone.] First thing you need to do after installing the app on your device is create an account. [ SHOW ACCOUNT]

Once you complete this step we create two accounts - one account that is persisted in our local database server (MongoDB) and the other in Braintree vault We’re not holding any credit card information on our server but holding a token thank can link us to Braintree.

From this point forward we have a two-way data workflow from the mobile device to our analytics server written in C# and F#. The mobile device pushes telemetry information (speed, geo location) to the server. At the same time, the mobile device periodically pulls from another server endpoint for feedback on the driver’s performance relative to the speed limits at their current geo-location.   
[ SHOW FLAGS]

So the driver is getting semi-immediate feedback on how their driving. Not pictured on the phone is a server piece that sends notification email using SendMail when the driver is accumulating an excessive number of speeding violations over a short period of time. This piece is also responsible for applying a small financial penalty deducted from the driver via Braintree API.

Finally we have a dashboard page [Show Dashboard]. If a driver is consistently driving safely (so no flags) once a week they can claim a portion of the entire accumulation of penalty fines from the unsafe drivers that week. And that’s what this page is used for.

The last thing I wanted to mention (that isn’t pictured in the mobile app because it’s on the server side based) was that not only do we help students drive safe, we use Machine Learning to predict individual driver behavior to help them avoid potential trouble.

The UI is written in Apache Cordova, the server side is written in C# and F#.

The car telemetry is a massive amount of data and we are using AzureML and IBM Watson. We used Braintree, Paypal, Venmo, and SendGrid as well in this application.