Problem
In our project, we focus on creating a VIP experience for T-Mobile users visiting the T-Mobile Park using 5G. We believe that 5G is more than just high-speed.

After spending 40+ hours conducting field study at T-Mobile Park during baseball games, we realized that although stadiums are often fun, exciting environments, one of the top pain points is navigating through crowds inside the stadium.

Solution
Our solution is an indoor AR navigation app that uses machine learning + SLAM (Simultaneous Localization and Mapping) to provide a reliable, high accuracy means of indoor navigation—along with auto-correction and auto-recalibration. Users can select a destination from a map, scan a marker to detect their current location, and follow AR arrows to their destination. To ensure safety while walking, we included a compass mode that allows users to still view directional information while their phone is down.

In the early stages of development, we attempted to solely use SLAM to build our app. After initial development and deployment, we noticed the accuracy of SLAM is not enough to facilitate stable indoor navigation with low deviation. Thus, we decided to include machine learning and image recognition to help improve the accuracy of the indoor localization.

Approach
From conducting primary and secondary research, we scoped down to an AR navigation app since we discovered navigation inside the stadium to be a major pain point. We worked closely with our sponsors at T-Mobile to scope down our project and fine-tune how our work plays a role in the 5G story. Our sponsors offered us mentorship and aligned us with the industry standards. Most importantly, we made decisions together based on the evidence gathered during user research and usability studies.

The design process included several iterations and evaluations. We created wireframes and conducted multiple rounds of usability studies to improve the user experience of our app. For development, we collected thousands of images to train a machine learning model, created 3D maps, and built out the full app design and functionality in Unity. We worked to not only design an app that is user-friendly and appealing, but also ensure our app can contribute to the larger success of T-Mobile as an organization.