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University of North Alabama Parking Application

The University of North Alabama is the oldest public four-year university in Alabama, having been founded in 1830. The Methodist Church founded the college in the beginning, and in 1870 it was taken over by the state. Since 1974, the college has been known as the University of North Alabama. It was founded in Florence, Alabama, in 1855. In four colleges—the College of Arts and Sciences, the College of Business, the College of Education, and the College of Nursing and Allied Health. UNA provides seven graduate programs in addition to more than sixty undergraduate majors. In 2008, the university was ranked in the top tier of America's best universities by U.S. News and World Report. It is among the five universities in the country with an approved industrial hygiene curriculum and one of the few in Alabama to offer a degree in commercial music. Located on the UNA campus, the Kilby Laboratory School continues to be the state's only university-owned elementary school and provides educational opportunities for UNA faculty and students.

The University of North Alabama currently uses a system known as OperationsCommander by Tomahawk Technologies. According to its website, the application is described as offering a "streamline solution for permit administration, parking enforcement, and incident reporting, making parking and security management efficient and cost-effective." OperationsCommander is an all-in-one platform consisting of three sub-categories for parking and security management -- ParkAdmin, ViolationAdmin, and IncidentAdmin. The university chose to implement OperationsCommander after initiating a state bid and submitting an RFP (request for proposal) for a parking management platform. They chose OperationsCommander because it offered the most functionality for the best cost and went live with the system in 2020.

The system is integrated into the UNA Transportation website as a parking portal, but the OperationsCommander system seems to be primarily utilized on the administrative side rather than the user side. Users must navigate to the parking portal through the University of North Alabama's Parking Services page. This page is overwhelmed with information and can easily confuse users. If a user chooses to select the link titled "My UNA Parking Portal" they are redirected to a page hosting the OperationsCommander system. Here, the user is met again with a webpage overwhelmed with information, poorly formatted with different font styles and font colors. Instead of the webpage being understandable, it can easily confuse a user on how to utilize the parking portal. For directions on how to navigate the portal, the landing page presents

a link for the user to be redirected back to the UNA Transportation website. The current system may be making the process easier on the administrative side, but it seems it was implemented for that factor alone. If a user were to receive a parking ticket, the process of understanding why they were given a ticket and then navigating the portal to pay for the ticket can be confusing and frustrating.

This current system does not implement a way for users to know if a parking space is available. Students traveling to campus have no way of knowing the availability of parking even after they may be commuting long distances. As parking is limited, this may cause students to waste time driving around campus to find somewhere to park, which could make them late for class and cause them to miss important instruction. The current system lacks clarification regarding the use of the parking portal, whether it be regarding information on designated parking lots for residential permits, commuting permits, or faculty and staff permits. It is, also, not user-friendly for easily accessing tickets and paying for them in the parking portal. On the administrative side, the current system lacks certain reporting and ticketing features.

While there are upfront costs, including development and implementation, maintenance, and hardware costs, the potential benefits significantly outweigh the costs in the long run. The users have real-time information, allowing them to find available spots quickly, reduced parking tickets, increased security throughout the campus, and less time spent looking for parking, all outweigh the costs of the project. Currently, UNA charges students $0 for parking. We are proposing that we charge students a $20 yearly fee, this allows us to have $212,000 yearly to afford the design and construction of the project. The cost of all materials is $105,536.31, which leaves us $106,463.69 to outsource the coding and construction for completion, as well as enough for long-term maintenance.

The proposed project would require the implementation of an AI within a programmed system that utilizes surveillance cameras installed in each of the 23 parking lots on the university campus. We expect each parking lot to require 3 surveillance cameras installed on utility poles to ensure total coverage of each lot. These cameras will utilize Wi-Fi connectivity with the feeds accessible by a monitor within a surveillance room. Each monitor will be able to support 6 camera feeds. This programmed system would monitor each parking lot, scanning it, and consistently updating an application that can be accessed by users. This application will be programmed to ensure it will offer users an individualized experience with their issued permit, with an emphasis on a user-friendly design. The application will be updated continuously

throughout the day so users can access information about parking availability, specifically within the lots accessible by their permit. On the administrative side, university police are able to utilize the application and the surveillance system's AI to easily recognize if a vehicle is parked within a parking lot that is restricted to their permit. We will require a programmer to develop the surveillance system AI, and the parking application. We will, also, require a UX designer to ensure the parking application is created with the user's interaction in mind as well as the university police's interaction. The proposed system should be easily maintained long-term as the surveillance AI and application will be designed with an emphasis on its ability to be updated.

The proposed project will be easily integrated into the organization's current operations as it is simply an improved replacement to the currently implemented system. The proposed project's system and application will additionally implement factors missing from the current system to improve operational efficiency and user experience. The proposed project should be easily maintained long-term with the proper technical knowledge to update and manage its technology. It will be a reliable way to implement a new parking lot monitoring system and user-friendly application that aligns with the university's values to ensure the best possible experience for students while on campus.

Legal feasibility is the part of the SDLC process where teams must make sure they are not infringing on any other systems that might cause a lawsuit later. There are similar apps to our idea right now. SpotHero is the most popular. Their software is patented; however, their app provides reservations for parking at certain places and does not just keep track of the available space. By writing our code and Artificial Intelligence to link to our system of cameras there is no intellectual property stolen because the idea is as simple as showing a counter and keeping track of how many cars are present in the different parking lots. We plan to link our system to the sensors with as little extra code as we can so we can still have a great app that works while avoiding intellectual infringement.

Our project timetable aims for a 210-day completion, including both creation and installation. We've built a 30-day cushion for flexibility. Ideally, each project phase should be completed within 90 days. However, the creation phase we wish to be completed within 90 days but there is some flexibility, and the installation phase we wish to be completed within 90 days after project creation.

Our proposed project will replace the current system implemented by the University of North Alabama with a system that utilizes an AI program within a surveillance system to streamline administrative tasks for the university police while also improving the user experience for students, faculty, and staff. This will be done through the establishment of an application that can be accessed through the web or via a mobile device. This application creates a unique experience by integrating the use of a user's university email and identifying the current permit held by the user. The simplified design would be developed with usability in mind, creating ease of access for both first-time and returning users. From the application, users will be able to access real-time parking availability unique to their permit, an interactive map of university parking lots, and notifications in the event of lot closures or events on campus that may affect the availability of parking. Users may also access information regarding their permits as well as parking tickets issued to them and easily pay for them. Our proposed project will increase the satisfaction of users on campus by not only improving the process of finding a parking space on campus but also improving safety and increasing the efficiency of the ticketing and reporting process. The proposed system will prioritize long-term maintenance.

Works Cited

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