**Team Name: Smart Park**

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**Work Package**

*Preface:*

Next semester will have plenty of challenges. There is a lot of work that needs to be accomplished. However, my team and I are in the prototype building phase. We’re also consistently communicating outside of the project. The end goal is to potentially offer a product that can be applied for organized events and activities sponsored and/or held by professional organizations. For example, American universities, across the country, could benefit from using the Smart Park system for their paid patrons utilizing it for sports events, like basketball games. Additionally, the major tasks to be completed by the electrical engineers, along with the computer scientists, will be listed below. They shall have a timely way they are to be completed, for the sake of activation and first use at Wichita State University.

*Objectives:*

* Design and research a better solution for our magnetometer on our device
  + Our current solution is feasible but not final since we’re all still testing possible solutions gathered in our research (32-page pdf containing different units with different abilities)
  + Nominal sensor ranges of ideal working range for vehicle detection is still being tested
  + Testing drivers, current solution is RM3100 though we’re having compilation problems with some of the programming
  + Will have better understanding while working towards a more final solution to the best possible unit for the device purpose: to detect vehicles within its parameters, for total device application being within it
* Rework and improve the container all the components of the device are seated in
  + The current solution is designed for our current build, which is not permanent, but rather a test for the initial application regarding vehicle parking
  + Diagram

    Description automatically generated
  + Above is the physical components within the device
  + Over time, the device will be more compact as we aim for a complete working unit after testing at Wichita State University
  + Right now, the current solution is within the parameters regarding extreme temperatures and firmness to protect from outdoor environment
  + The current container is sufficient for dissipating heat, though not the greatest
    - Still gets a little hot to the touch, according to my understanding
* Possible rework on internal power solution, particularly regarding possible energy/heat waste and consumption
  + We are currently using a lithium-ion battery as the power solution for the unit
  + Lithium-ion battery is bad at low temperature, however the initial container housing the components is within range of handling it so we’re testing it out before we try other solutions
  + There are several other solutions our Team and I have developed or are considering
    - We’re only going to be testing a few, due to time constraints, before we have a more permanent solution by the end of next semester
* The CS team will work on implementing an easy user-friendly interface on android devices and iPhones for patrons to process their use of the Smart Park device
  + They have been doing this since the beginning
  + However, they will be completing this process by next semester
* Connect with the CS team to design an algorithm(s), or program(s), to help police possible illicit usage (non-paid and/or illegal parking in stalls, with Smart Park prototypes and eventual finished devices incorporated there) of the Smart Park Device by hecklers and non-patrons
* Eventually design a possible business model to start a real business with our product
  + So far, there has been signatures and documentation featuring all members from both teams so that everyone is credited in the end
  + There has been much interest, which is why there are technically two teams working on the product. One on the programming side, the other on the physical hardware application side (which is I and my team)
* Design an outline that could lead to possible mass fabrication of our product for possible consumptions from possible patrons
  + If tests succeed next semester at the university, or wherever my team and I can apply the product, then there is confirmation of potential of being a genuine and legal business
  + Presently still researching how to do this with the rest of the team

Currently, Coach Allen and Andy Stallard have not presented or demanded that any governing conditions be assessed. My team and I are in the prototype building phase. We’ve accidently left coach out of the loop for a while. Other obligations needed to be complete in conjunction to this project, so time management has been a challenge. When the regulatory conditions are specified, they will be prioritized based on design needs and for possible future users interested in purchasing our product. In the meantime, we are concluding this semester by finalizing our initial prototype for the end-of-semester showcase.