

## Project Title: **Spade**

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### **Project Goal**

This project is to create a Bluetooth capable receiver that will emit electromagnetic pulses to emulate a credit card, and an app for the iPhone that will send the card info to the receiver over Bluetooth. Cards are inconvenient for a consumer.

### **Project Approach**

The project is a hardware receiver and a mobile app. The mobile app will acquire credit card info (through a scanner) and send it through Bluetooth to our hardware receiver. This receiver will then emulate the card using electromagnetic pulses.

### **Project Resources**

The plan is to use the Nordic NRF51 as the processor and bluetooth chip driving a magnetic field generating device. The first step would be to make a EMP producing device. This device would most likely be produced with some sort of transistor switching on and off a high current controlled by a digital signal. Then we would take this device and interface with with the Nordic chip to emit a magnetic field from a bluetooth signal. Lastly we need to make a custom iPhone app to interface with the bluetooth chip and make sure the device works as a whole.

### **Project Schedule**

- October 21: Project charter (this document)
- October 28: Verify project feasibility after discussion with GSIs.
- November 11: iPhone app which sends data over Bluetooth done.
- November 18: Mini project update: Demonstrate Bluetooth sending and receiving.
- November 25: Hardware bluetooth receiver working.
- December 2: Magnetic field generator working.
- December 16: Demonstration video made, powerpoint prepared.
- December 17: Final presentation and demo.
- December 19: Project report and video turned in.

### **Risk and Feasibility**

The primary risk is that individual components, especially the magnetic field generator, will take too long, thus delaying the entire project. By doing as much work as possible in parallel, we will attempt to mitigate this risk. Furthermore because we already have many of the parts we require, our project within this timeline is very feasible.