

INTRODUCTION

The Bicycle Power and Security System (BiPSS) is an aftermarket embedded computer system installed on a bicycle, with a focus on security and power peripherals, including a GPS tracking system and electronic lock system.

DESIGN GOAL

The goal is to create an aftermarket security system for bicycle riders and to provide them with a sense of security. We want this system to be easily installable, but hard to tamper with.

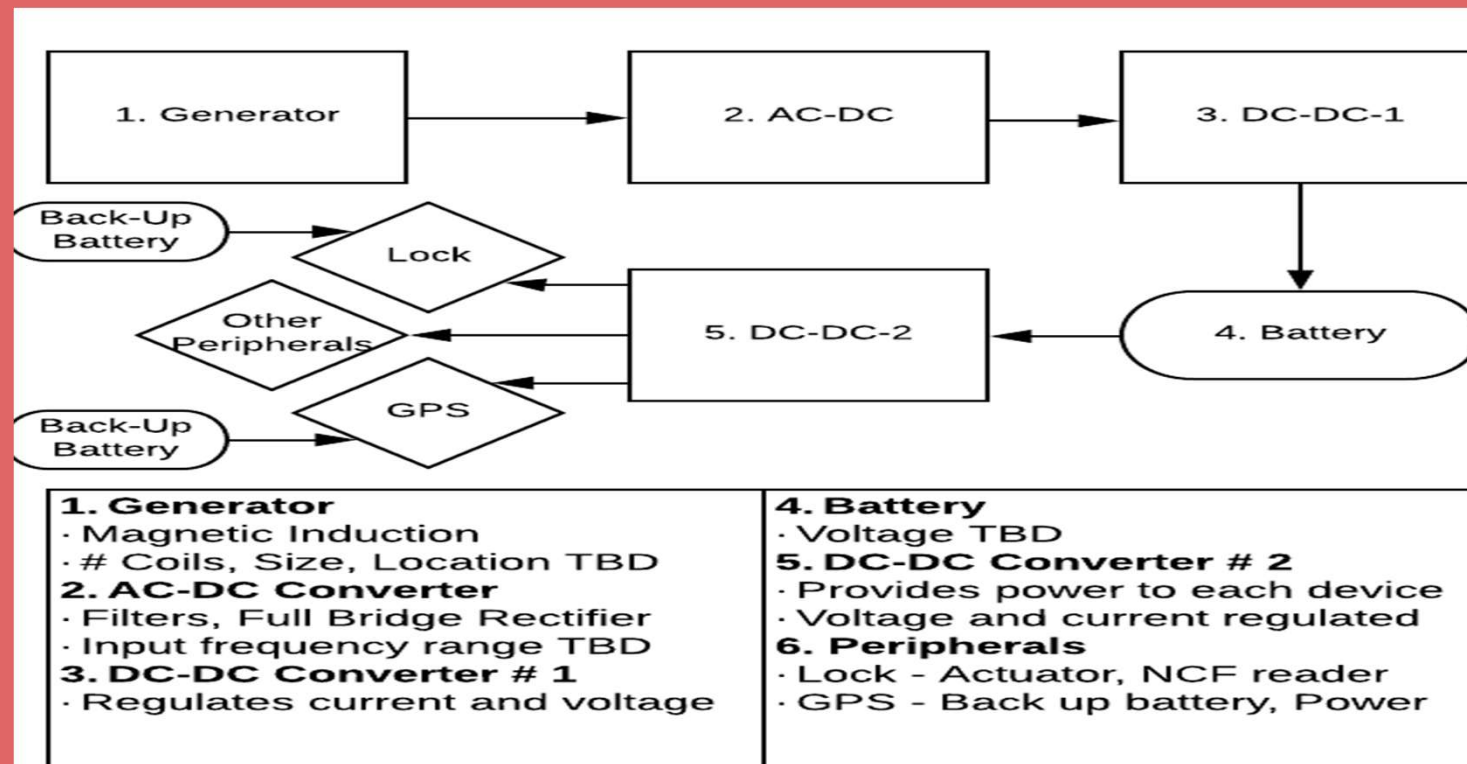
PROBLEM STATEMENT

Bicycles are stolen every single day in the United States. The vast majority of bicycles do not have any anti-theft or location tracking components. Regular bicycle locks are a decent deterrent, but are limited in their functionality, and are useless once the bike is stolen. We want to redefine bicycle power and security with BiPSS.

FEATURES

- 1.) GPS (With Text Interface)
- 2.) Magnetic Induction Generator
- 3.) FC Actuated Lock
- 4.) Audible Alarm Circuit

PROCESS DESIGN



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REQUIREMENTS

The system must be a visually appealing, low cost, low weight, and easy to install aftermarket product for casual bicyclists. Our prototype will be installed on a standard commuter mountain bike, provided by one of our team members. Our design will need to store enough energy through magnetic induction to keep the GPS tracking device and electronic lock charged. The GPS and the lock will have a battery sufficient to keep them functional for 3 days. For the electronic locking mechanism, Near Field Communication will be used as it is secure, used in close proximity, and is common on most smartphone devices.

GENERATOR CONCEPT

