SNOBIKE

CONTEXT:
Many students and faculty rely on bikes as a form of transportation. Biking is an excellent option for those who wish to travel sustainably, but relies heavily on seasonal weather conditions. In order to provide a solution to the problem, the idea for a bike with snow capabilities was created.

OBJECTIVE:
To design and prototype a bike that will function safely on snow covered paths as a form of transportation during the winter months. The design should be a kit that a user can buy and attach to a mountain bike.

DESIGN:
Attach a ski mechanism to the front for additional stability and attach a tread system to the back for more traction to prevent the bike from sliding.
**SNOBIKE: Ski Design**

**SKI MECHANISM:**
The mechanism that attaches to the top of the bike is a machined piece of aluminum. The ski bars are welded to the mechanism to attach to the skis (above). The threaded rod attaches to the mechanism using a dowel to provide increased adjustability in the height of the fender attachment (below).

**AXLE ATTACHMENT:**
(above)
The slots on the tabs allow the rider to use the original axle of the bike for two reasons. They provide a secure fit for the ski mechanism and an easy assembly process.

**SKI ATTACHMENT:**
(above)
The ski attachment utilizes a U-channel and a bolt to allow the aluminum tubing to securely fasten to the skis.

**DESIGN:**
(above)
A simple kit that is assembled by connecting to the front axle of the bike and clamping to the brake fender.
SNOBIKE: Tread Design

SHOCKS:
(above)
The shocks attach to the seat post and the idler arms. They allow the tread to be engaged with the ground when the Snobike is going over uneven terrain and prevent the tread from swinging up and striking the rider.

IDLER ARMS AND WHEEL:
(above)
The idler arms and wheels provide a circuit for the tread. The length of the arms is adjustable to allow for installation and optimal tensioning. The wheels are spaced to allow the teeth in the tread to pass in between them to aid in alignment. This component of the system provides the traction necessary for propulsion in the snow.

DESIGN:
(left)
A system that attaches to the rear of the bike. The tire and tubing are removed and the tread is placed around the rim. The idler arms and wheel are attached to the rear axle of the bike. The shocks are clamped to the seat post.