

Checker Machine, Inc.

New Hope, MN, c. 1982–present

SkyRide recumbent prototype with prototype drivetrain, 2008

Painted steel, bicycle wheels and components

Lent by Scott Olson

When it comes to driving innovation, Scott Olson feels that working ideas out on paper only gets him so far—he prefers working with prototypes. This SkyRide prototype is one of his earliest, and helped him come up with a better drive mechanism than this one, which wore out quickly.

Vince Linders

American, born 1960

SkyRide adapter for upright bicycle frame, 2012

Aluminum, bicycle frame and components

Lent by Scott Olson

Vince Linders heads the manufacturing firm that constructed the Irene Hixon Whitney Footbridge connecting the Minneapolis Sculpture Park to Loring Park, near the Walker Art Center. Scott Olson asked him to develop an alternative drivetrain for his SkyRide prototype, and he approached it from a fresh angle: the suspended structure serves as an armature for a standard upright bicycle, a design attractive to cyclists who value a good fit with their equipment.

Joshua Hanson

American, born 1978

SkyRide display model, 2014

Fiberglass, aluminum, and bicycle components

Lent by Scott Olson

This working model is a “pitch prototype,” resembling the final product closely enough that it can be used to sell the idea to potential customers.

Tariq Rahman

American, 1960

Prototype for WREX design, May 1995

Wooden chair, aluminum, plywood

Lent by Tariq Rahman

Many patients who would potentially benefit from WREX technology use wheelchairs, so Rahman bolted his early armature designs to an old wooden chair. Elastic cords, serving as arm muscles, are attached to a plywood sheet at the back of the chair.

Tariq Rahman

American, 1960

Stratasys Ltd

1989–present

WREX “Magic Arms,” 2015

Molded plastic vest, Velcro strapping, machined aluminum,
and 3D-printed ABS plastic

Lent by Stratasys Ltd

This is a working model of a WREX armature. It was designed for a 2-year-old patient with a rare neuromuscular condition that causes contracted joints and muscle weakness. The white plastic joints were created with a 3D printer and attached to machined aluminum arms, allowing the armature to grow with the child. Rubber bands act like muscles.

Don Harley & Associates

St. Paul, MN 1950s–1976

Safety Car – Partial Exterior Frame Feature, 1969

Colored pencil on gray illustration board

Safety Car – Phantom View Showing General Arrangement and “Movable Capsule,” 1969

White pencil, colored pencil (mylars) on gray illustration board

Renderings by Leo Wildgen (1928–93)

Northwest Architectural Archives

In 1965, Ralph Nader's book *Unsafe at Any Speed* exposed the negligence of auto manufacturers that put profits before safety. Four years later, Don Harley & Associates designed a "safety car" to address these concerns. It's an elegant solution: a swiveling cockpit remains in place during a collision, thanks to inertia, even as the rest of the car is pushed around.

It seems like a flight of fancy, but the "phantom" sketches of the car's construction reveal that the mechanics had largely been worked out. Leonardo similarly created hundreds of sketches of fantastical machines, most of which were never built. But in designing them, he developed ideas that were put to practical use in other work.

Vince Linders

American, born 1960

SkyRide adapter for upright bicycle frame, 2012

Aluminum

Lent by Scott Olson

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