

possible project ideas

# Hydroelectric

Plant

## Members Involved

viktor  
**SHKRIVANI**

hiroto  
**HOSOKAWA**

## General construction idea.

### Mechanical Input

Water from the bottle flows down the pipe.

Hits the turbine blades, rotates the shaft.

Shaft spins a rotor (with magnets attached)

### AC Generator

As the rotor spins, magnets pass over the coils.

Magnetic field changes induce AC voltage in the wire coils

Voltage generated

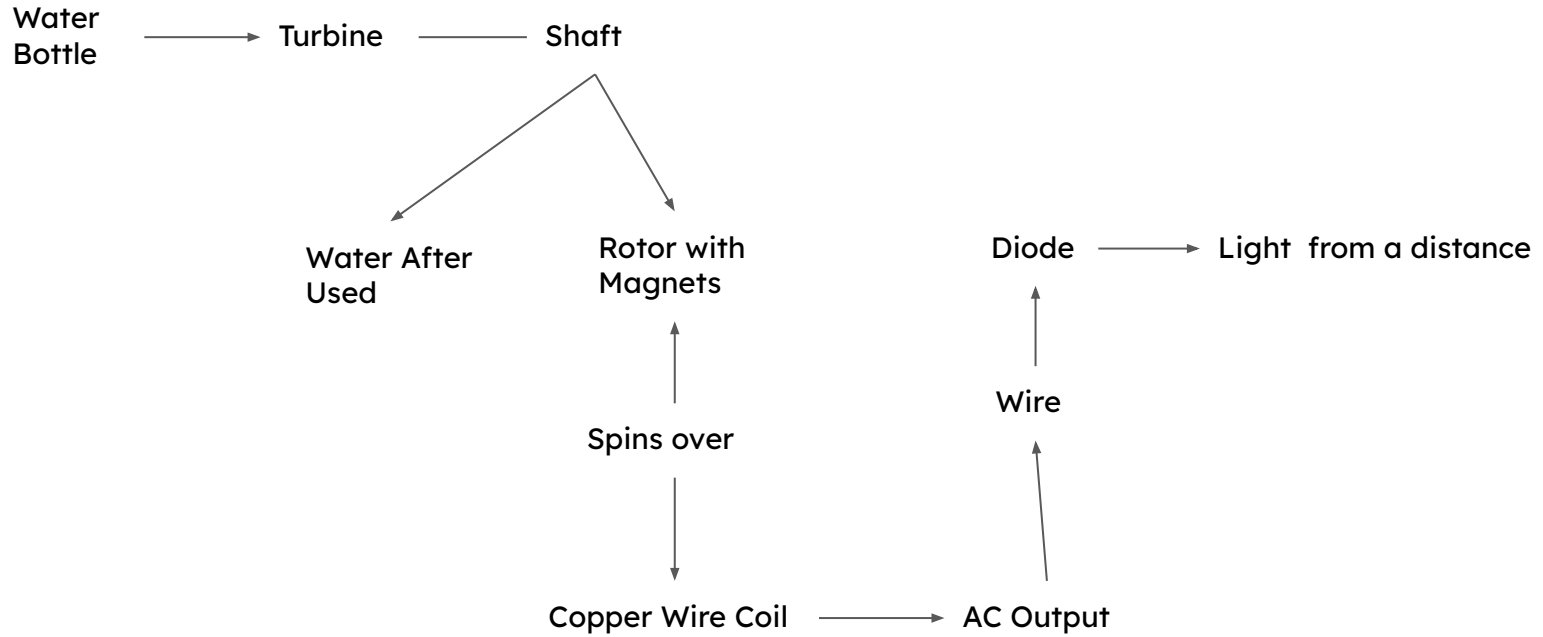
### Electrical Output

Coil generates AC, voltage travels through wires

Diode is placed in series before the light to allow only one direction of current (like an transformer)

At the other end, the LED/bulb lights up

# Our Plan



what **parts** are needed?















10 Pack 608 Ball Bearings – Bearing Steel and Double Rubber Sealed Miniature Deep Groove Ball Bearings for Skateboards, Inline Skates, Scooters 608 Bearings (8mm x 22mm x 7mm)

-21% \$4<sup>74</sup>



uxcell Motor Fan Blade 120mmx15mm D Shape Bore White  
Engineering Plastic with 12 Vanes

\$8<sup>28</sup>



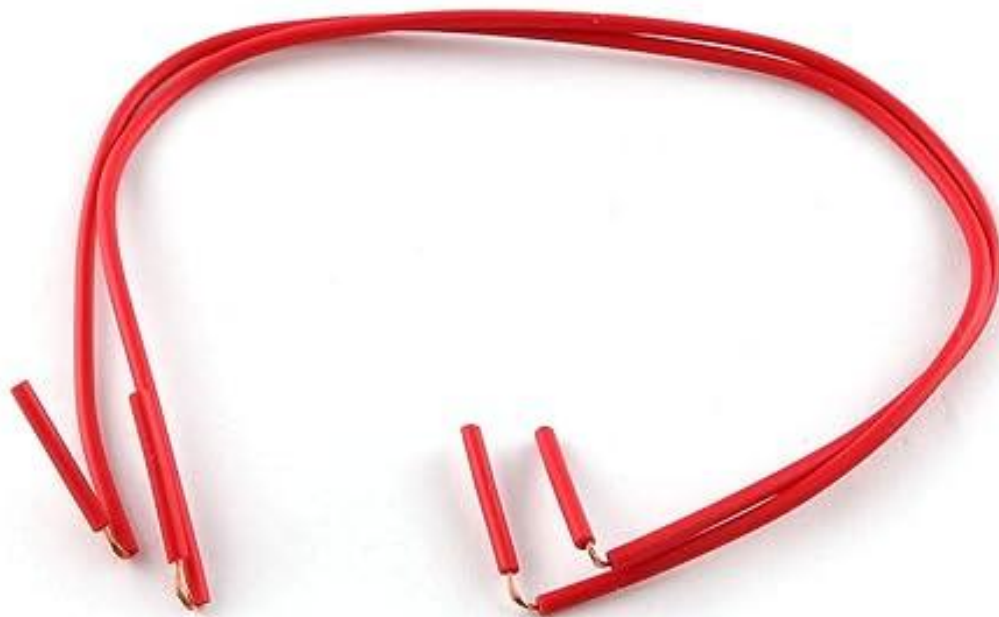




E-outstanding Electrical Circuit Experiment Tools Physics  
Science Lab Basic Circuit Learning Starter Kit Electricity  
Experiment Set 10 3.8V Bulb, 1 Battery Box, 1 Switch Button,  
2 Wires, 2 Lamps

\$8<sup>99</sup>

More Wire





(25 Pcs) 15SQ045 Diodes Schottky, 15amp 45V Diode Axial  
Schottky Blocking Silicon Diodes

\$5<sup>99</sup>

If AC motor is used —>



How will **responsibilities** be delegated to each group member.

We are a team of two and while our experience with engineering builds is limited, we see this as an exciting project that can be interesting for the class too. Our concern is whether just two people can successfully design, build, and test both the mechanical and electrical parts within the time we have. We're wondering if it's realistic to complete this with our current skills, or if we should simplify the design. We're willing to put in the effort, but we want to be sure the scope of the project is manageable for a small team with basic hands-on experience.

*We plan to work in a group for each phase of the process*

Planning & Design

Building the Turbine & Generator Base

Making the Rotor and Coils

Wiring & Circuit Assembly

Testing, Measuring & Troubleshooting

Final Build, Presentation

**Questions**, comments/concerns, or thoughts you may have.

We want to check if our hydroelectric generator idea is a good fit for the class and if it's doable for just two people. We're also wondering if it shows enough engineering to include in a portfolio or job application later. We already talked to the other group, and they're also thinking about doing a generator. We value that idea too, so we're open to possibly joining them if it makes more sense or helps us build a stronger project.