

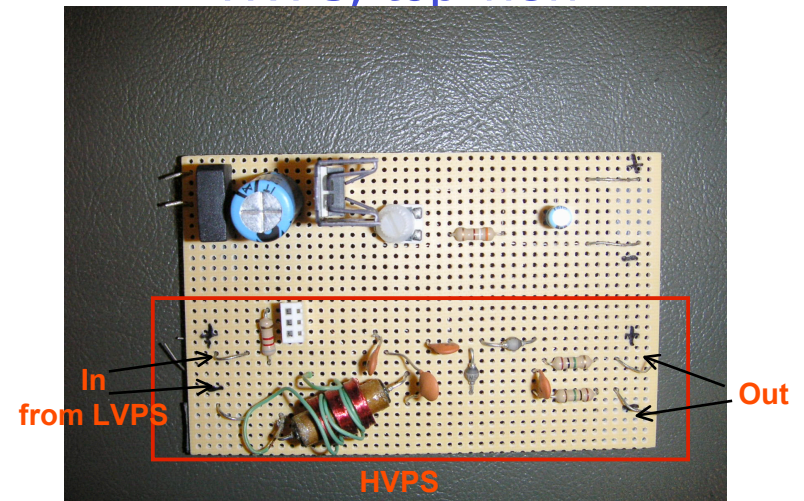
News

- Free Dinner on Monday, 2/28, 6:30PM
 - Courtesy of "Student Committee on Educational Policy"
 - 10-15 volunteers needed
 - If interested, send me an email
 - First come, first served

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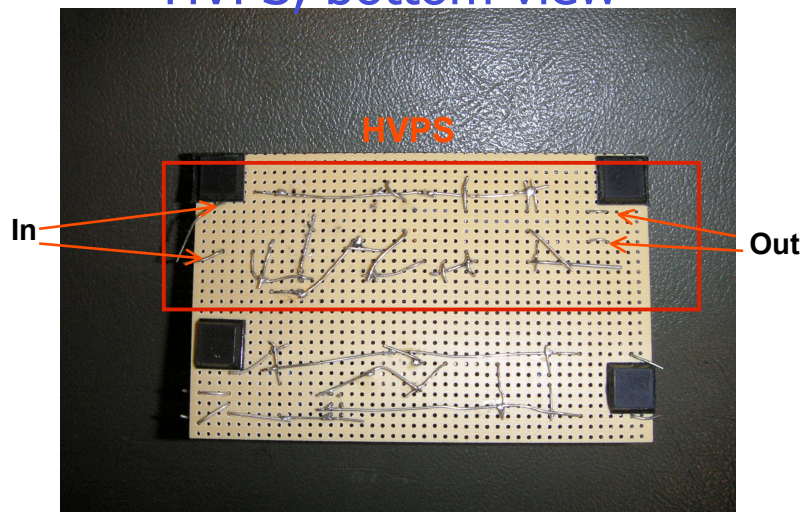
HVPS, top view



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HVPS, bottom view



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Successful Living with your HVPS

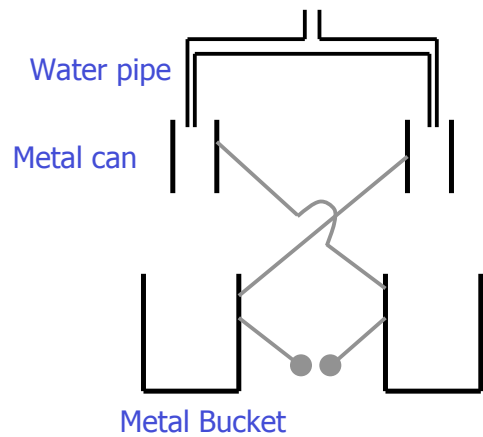
- Start this weekend!
- Make sure inner and outer coil have same winding orientation
- Remember that middle pin of transistor is 'C' (collector)



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Kelvin Water Drop Generator

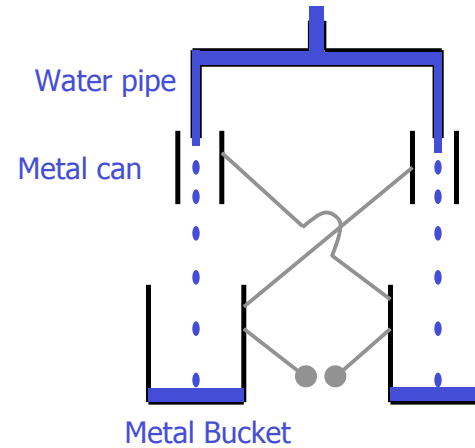


- No battery, motor, anything...

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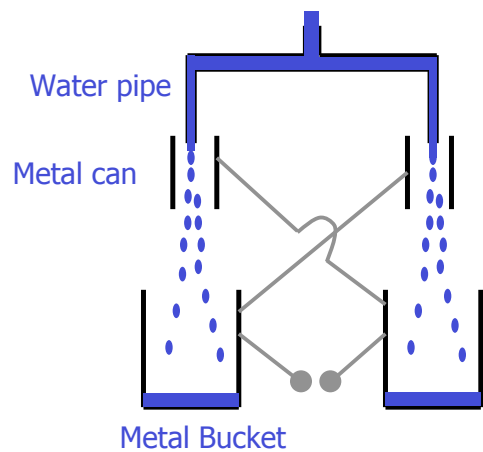


- No battery, motor, anything...
- Start water flow

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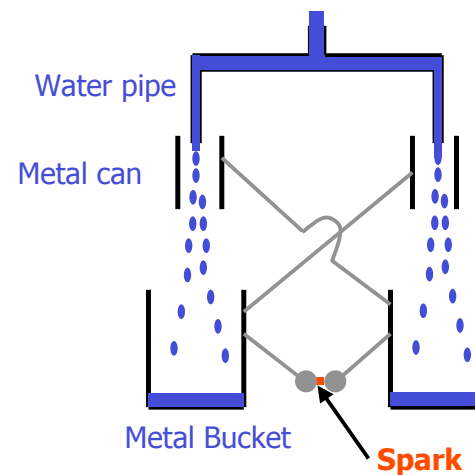


- No battery, motor, anything...
- Start water flow
- Water 'flares out' – like tinsel

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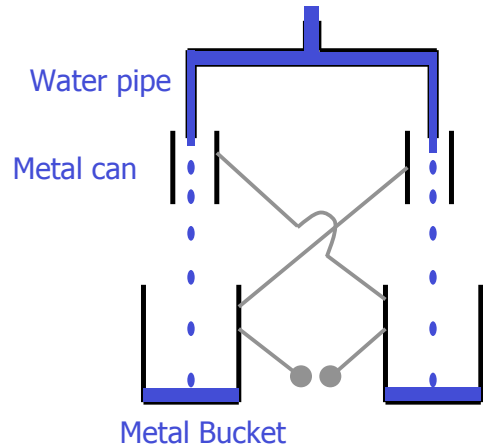


- No battery, motor, anything...
- Start water flow
- Water 'flares out' – like tinsel
- Spark!

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Kelvin Water Drop Generator



- No battery, motor, anything...
- Start water flow
- Water 'flares out'
 - like tinsel
- Spark!
- Cycle repeats...

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Puzzles

- Spark
 - Spheres have opposite charge

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Puzzles

- Spark
 - Spheres have opposite charge
 - Asymmetry!
 - But apparatus is symmetric!?

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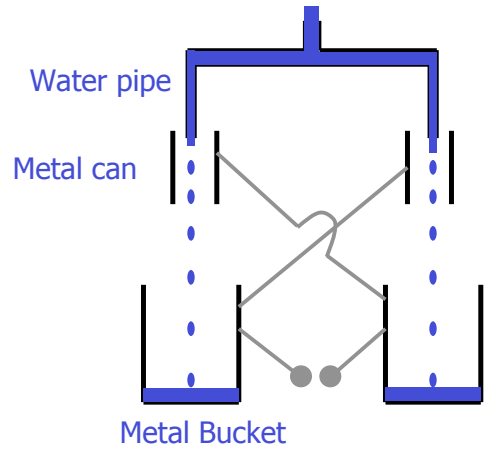
Puzzles

- Spark
 - Spheres have opposite charge
 - Asymmetry!
 - But apparatus is symmetric!?
- Where does the energy come from?

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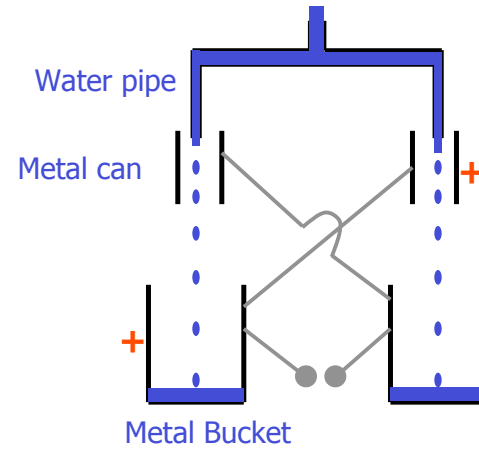
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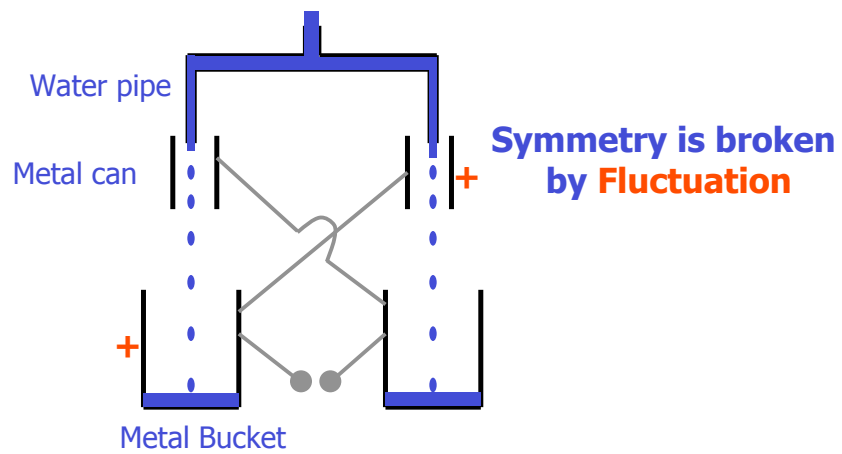
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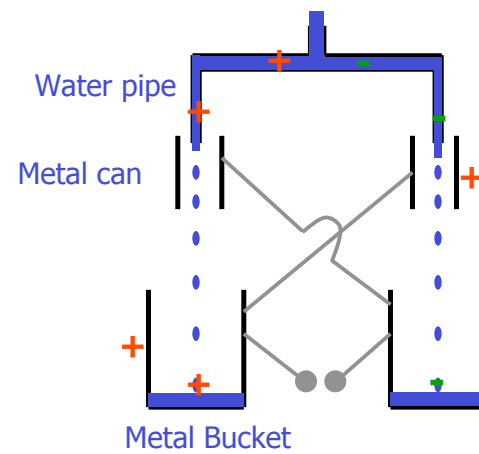
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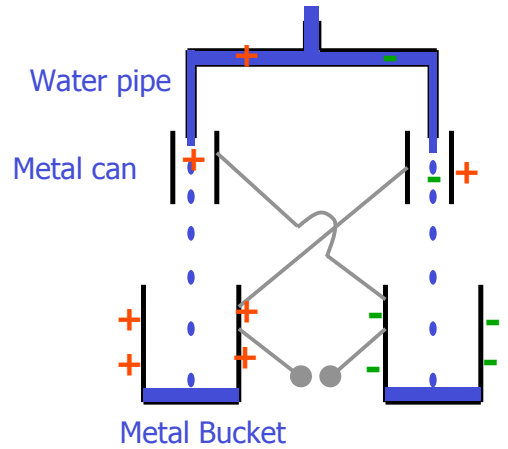
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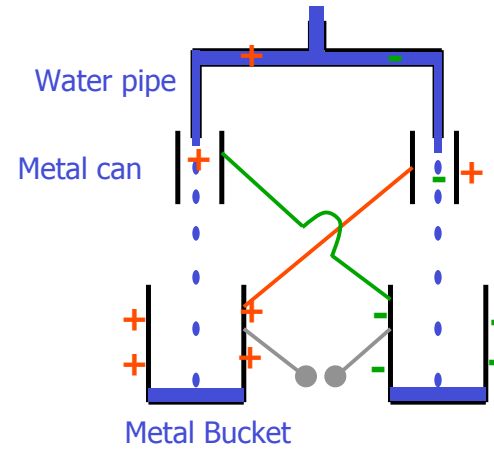
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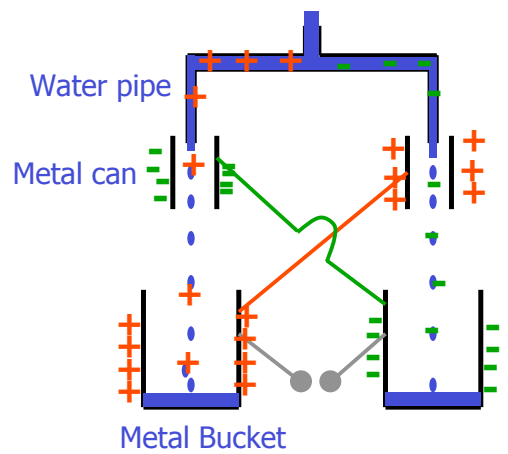
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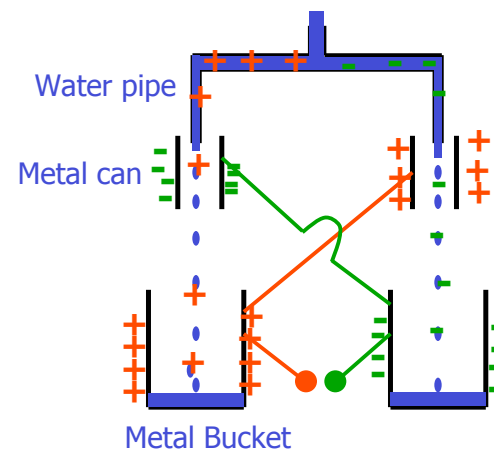
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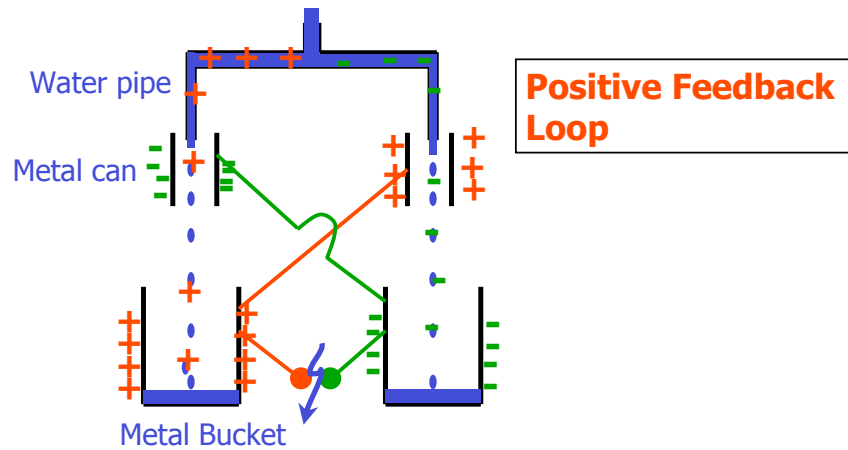


Positive Feedback Loop

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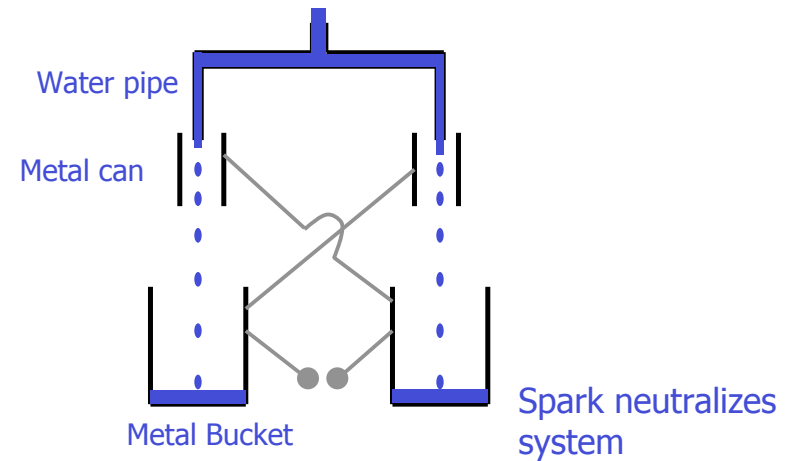
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Final question

- Spark is like a small lightning
 - contains energy (like lightning)!
- Where does this energy come from?

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→ **Gravitational potential energy of water**
 $(E_{\text{pot}} = m g h)$

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