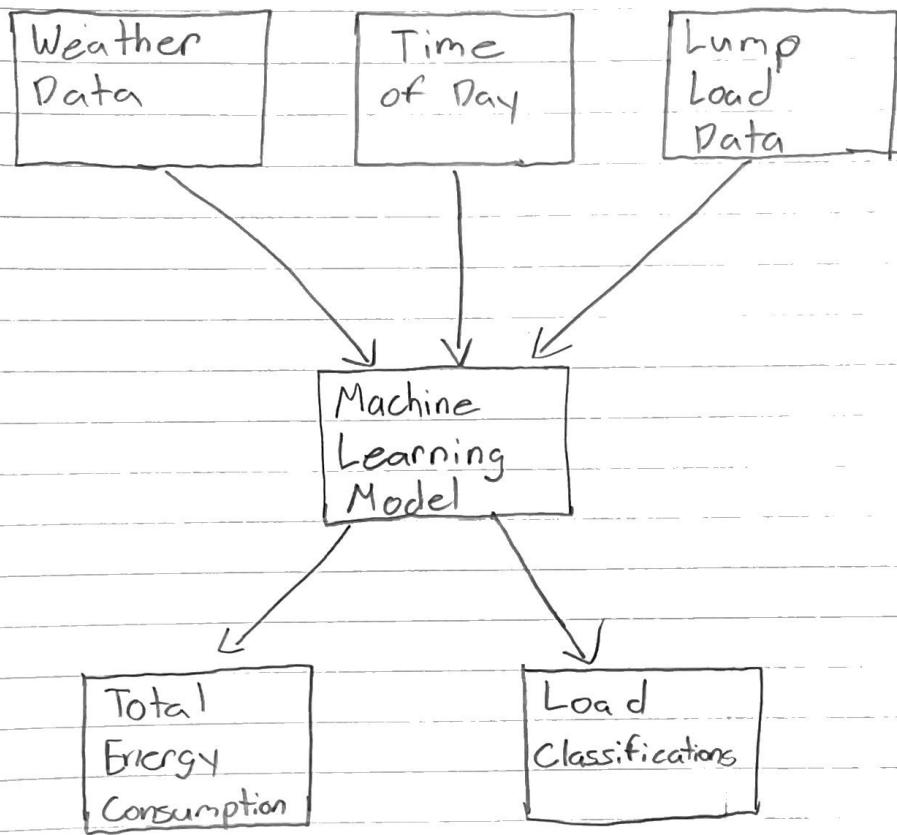


## Idea #1

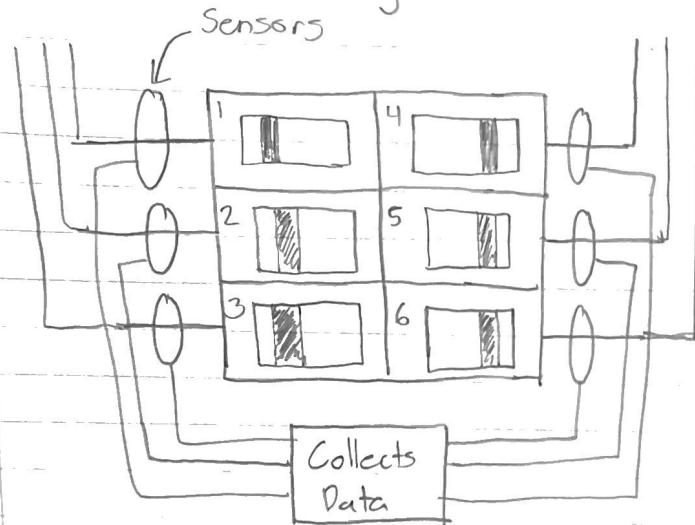
### Machine Learning Model

- Requires data from panel that is accompanied with the weather & time that data was taken



## Idea #2

- Sensor at each individual breaker
- No machine learning needed!

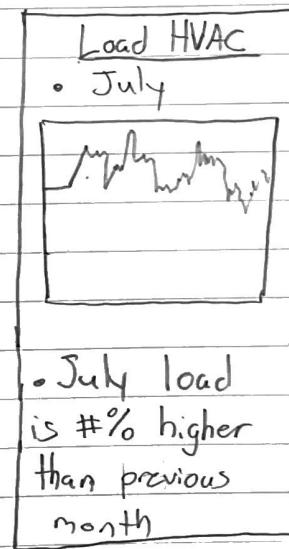
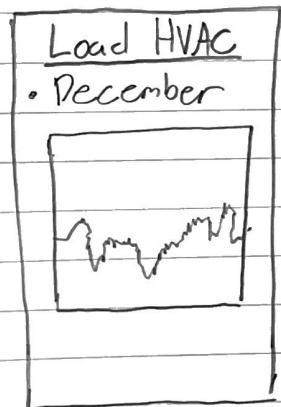


- Can input what sensors are on breakers that are feeding certain classes
- Adds classes of the same type up and outputs it to website or mobile app
- Requires many sensors.

## Idea # 3

### Mobile App to output Data

- App will get the data that is already disaggregated and show it on a graph
- Can see old data from previous months to compare your energy consumption



- Will have an output like this for each load classification

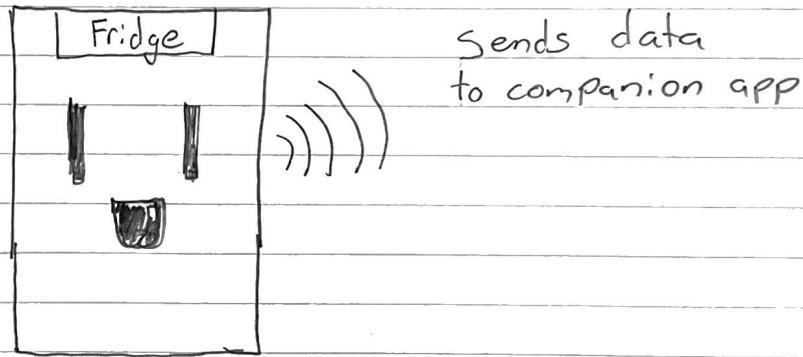
# Idea #4

## Smart Plugs

- Have a smart plug at locations around the home

- Fridge
- Dryer
- Oven
- Microwave
- Dishwasher
- Television

- Smart plugs can be labeled as what load is being connected to it

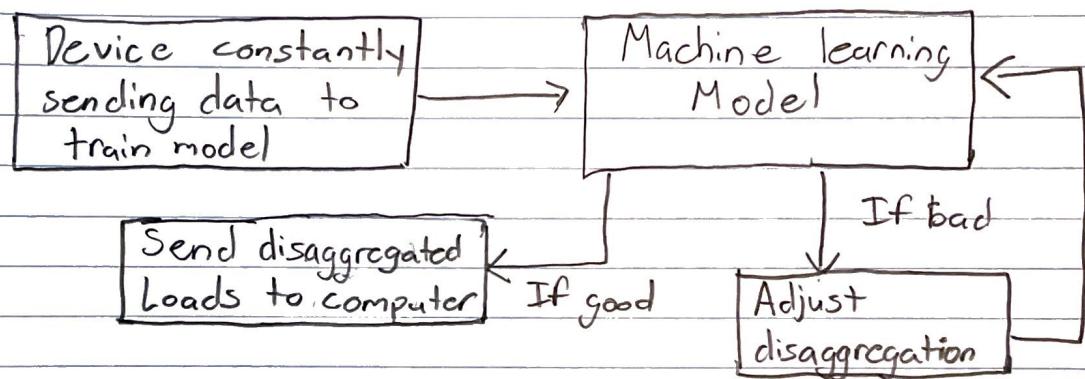


- The plugs disaggregate the loads
- No machine learning needed

## Idea #5

### Dynamic Model

- Device inside panels measured load and sends the input data as it gets it to the machine learning model

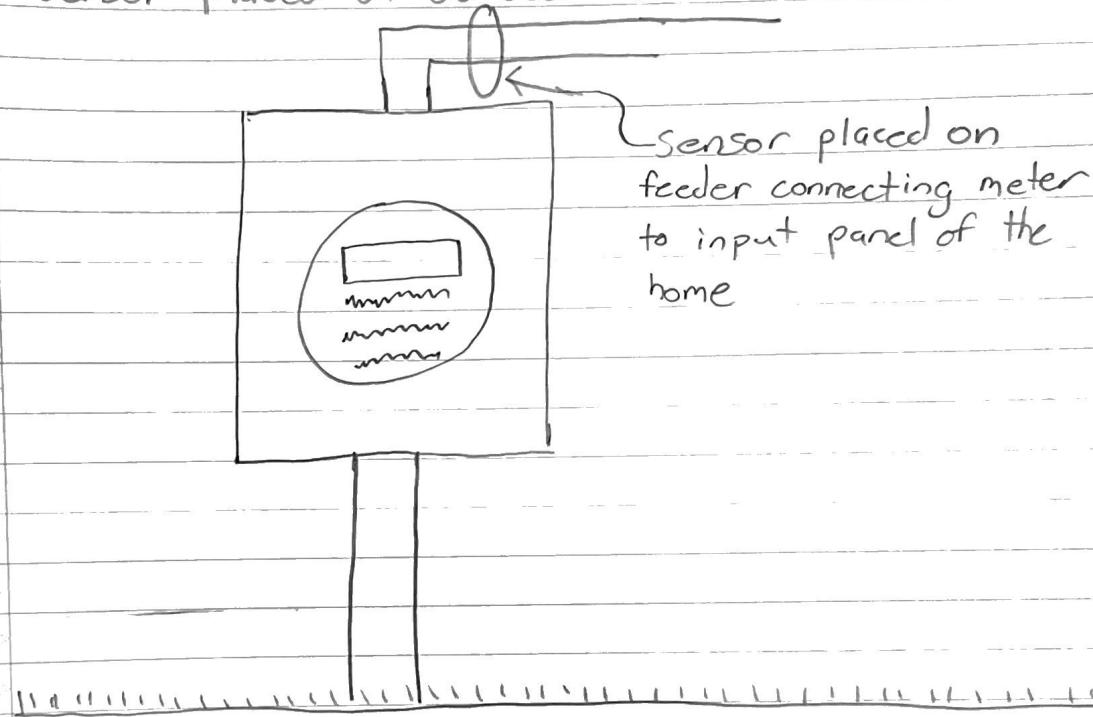


- This can quickly train the machine learning model

## Idea #6

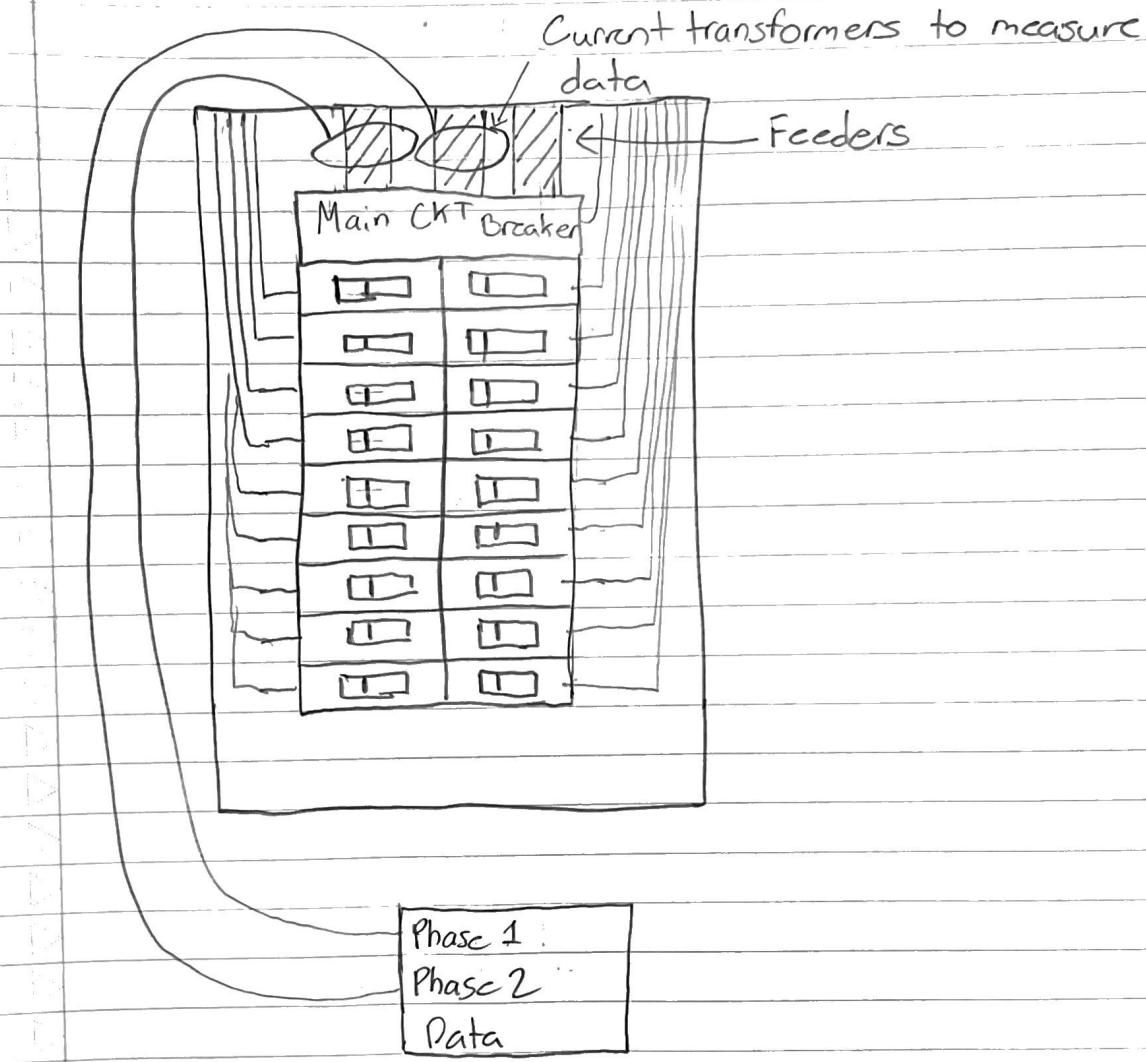
### Outdoor Meter

- Can take temp/estimate weather conditions
- Sensor placed on outdoor meter for the home



- Gives a lump sum measurement
- Will be sent to machine learning model

## Idea #7

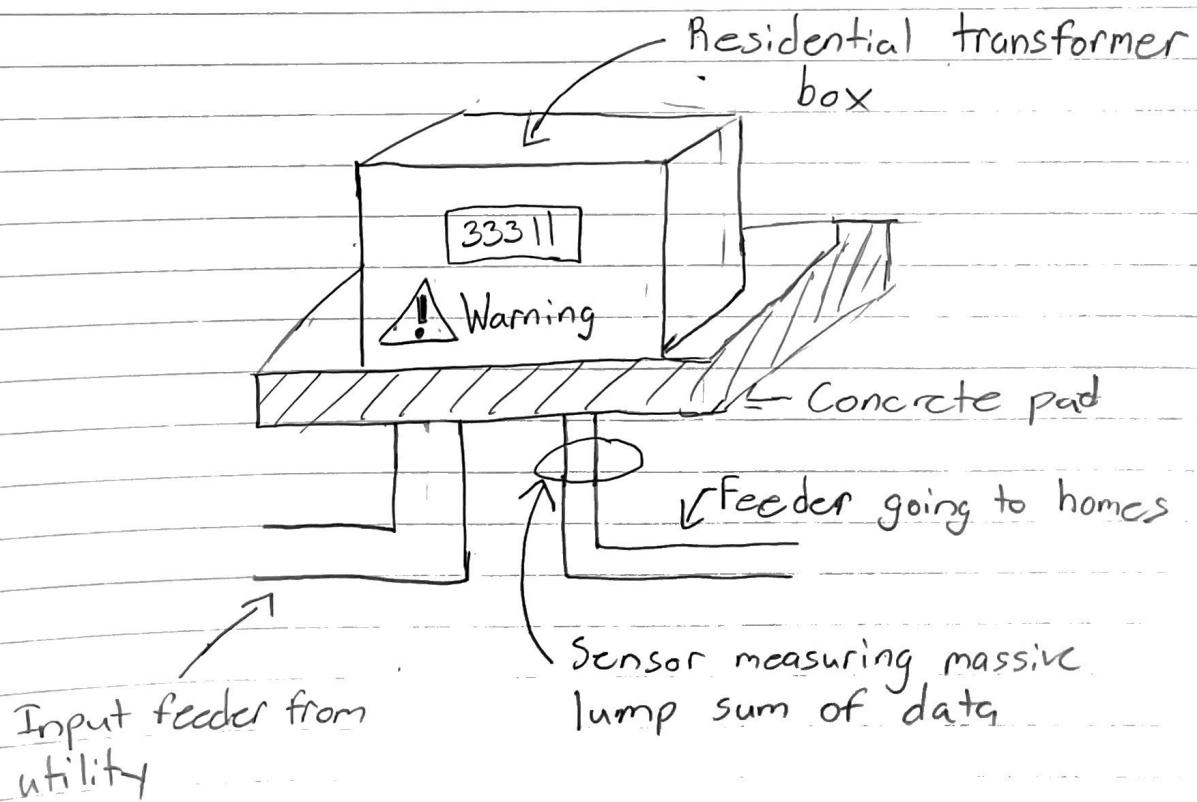


- This device will measure data at the sensors.
- Plan to place device inside the panel
- Device will be connected by wires to the sensors placed in panel.
- Takes one lump measurement

## Idea #8

### Utilizing Transformer

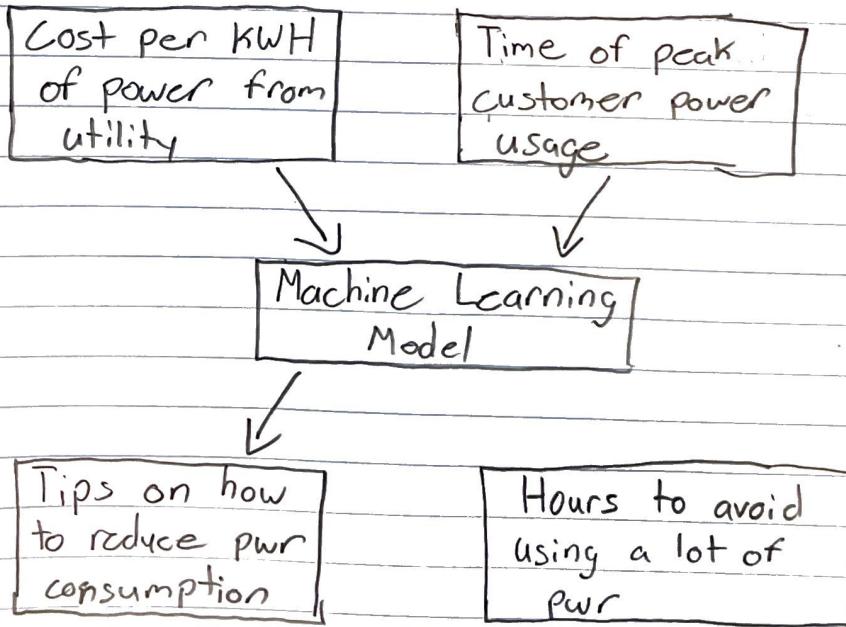
- Have a sensor placed on a residential transformer that feeds multiple houses
- Is accompanied by app to see group consumption
- Can have friendly neighborhood competitions to see which group of homes can use the least amount of energy



# Idea #9

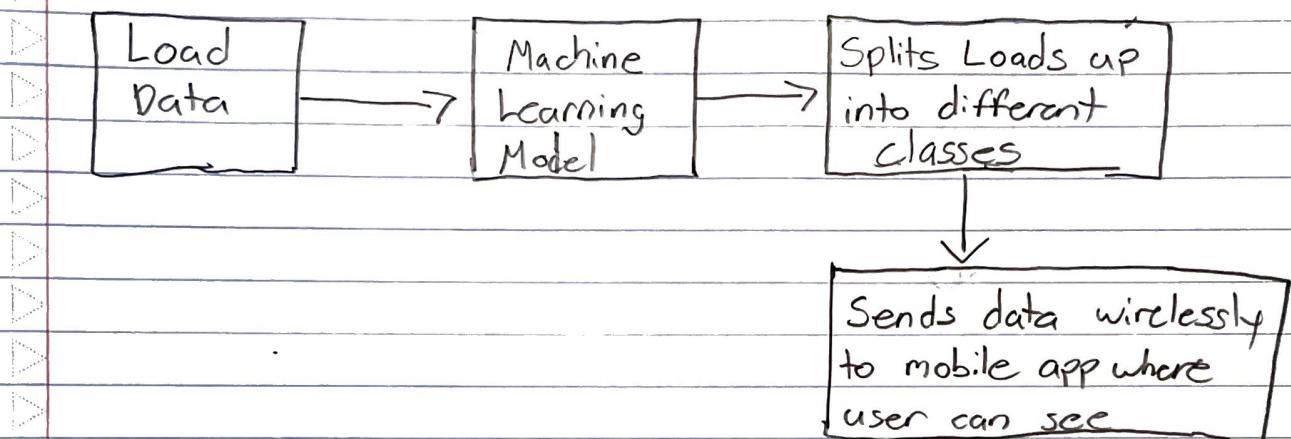
## Future Planning Using AI

- Takes data from device placed in panel and sends it to Machine Learning Model
- Model will give tips on how to reduce energy consumption
- Utilizes data from utility on cost per kWh so customer can avoid high usage during peak times



## Idea #10

- Have 1 sensor inside panel that takes measurements of Load.



- Machine learning mode will be able to estimate what classes loads are depending on the weather and time of day