Project
The SmartSmoker is an automated meat smoking device that controls the smoking environment based on sensor data. The controller adjusts feed rates for the wood pellet dispensing auger and the liquid dispensing peristaltic pump to maintain desired environmental conditions. The heating element is used to maintain the optimal meat smoking temperature.

Methods & Materials
- Waveshare 3.2in RPI LCD
- Raspberry Pi 3
- Arduino UNO
- IOT Power relay
- Peristaltic pump
- Stepper motor
- HS1101 Humidity sensor
- LMT87LP Temp sensor
- Big Easy Stepper driver
- PMT-D1V100W1AA AC/DC Converter
- Food safe temperature probes
- Metal auger

Results
The SmartSmoker heats evenly but has difficulty reaching the desired maximum temperature, due to heat loss from the smoking chamber and the size of the heating elements used. The smoker has difficulty controlling levels of smoke density due to the inconsistency of pellet size and burn rates.

Problem
There are many variables involved when smoking meat.
- Humidity
- Temperature
- Cooking Time
- Smoke density
- Smoke time
Monitoring these variables and adjusting the smoker accordingly can be a complicated and time-consuming process that not everyone wants to do. The SmartSmoker would enable the average user to smoke meat at home without all the hassle.

Conclusion
The SmartSmoker can continue to be developed and improved. A future feature that I would like to add would be a mobile user interface. This would allow the user to not only monitor the smoker while away but adjust them as well. An improved user interface and more efficient heating are additional improvements planned.

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