



# The RUBBER CHICKEN



**NEXT MEETING: Bier Distillery**  
5295 West River Dr NE #100, Comstock Park  
**Competition 6:00, Meeting 7:00**  
**February 21, 2018**



## Life is Easier than Ever

Life is short and hard, like a bodybuilding elf. But, it keeps getting better for the Homebrewer! The hobby has grown so much and gotten so much easier, anybody can win that Brewer of the Year plaque these days. We have come a long way just in the last decade.

When I started brewing 15 years ago, (I know, I am but an infant compared to many of our members) the beerscape was quite different. I won't get into how different because that could be a topic for another day. Craft beer was nearly non-existent compared to now. Many homebrewers started out of necessity as much as curiosity.

I remember those bleak, colorless, pre-dawn mornings getting the fire ablaze before making the harrowing trek to the well, a mere 15 miles uphill both ways. Threshing and malting wild grains the children had collected weeks or months before. I experimented with different bitter herbs to temper the sweetness of that hodge-podge of field grains. Dipping my beard in the cooled concoction for inoculation, I prayed it wasn't nasty--Godisgood. All this time, my bedraggled family shaped earthen vessels to store this brew for the future. This was the SOP at the time. I had it pretty good.

Once a year, after the back-breaking harvest, we brought our meager bounty to market in hopes that we could subsist for another year on the profit. While at market, I stopped by the stall of a Sicilian to hear the news and catch up with my fellow homebrewers. Word was spreading like the plague of this new wild weed called hops. Oh the doors had been thrown wide and the horizon was spread before me. This was the first breakthrough to modern brewing. I am sure there are many members that remember when fire and pottery were outlandish innovations. Look how far we have come since those dark times.

But seriously, Homebrewing has never been easier. It has always been a DIY style of hobby. People that like to make something out of nothing. We scavenge parts, and repurpose equipment to meet our needs. Not too long ago ingredients were much more limited in variety, quality, and availability. I recently paged through Midwest Supply catalog that I received in the mail, and was struck by how

much thicker the volume was. Now everything is at your fingertips, literally. The internet is a strange and wondrous place full of a myriad of ways to spend your hard earned money on Homebrewing "shit", as my wife calls it. The level of innovation and invention in products, as well as marketing, is growing exponentially.

It really is spectacular. With things like automated nano-brew setups like the PicoBrew, or Grainfather, it almost feels like cheating. The PicoBrew system seems like a Keurig machine for beer. Set your timer and come home to finished wort, ready to pitch. I still love my hands-on, 3-tier gravity fed, 1/2 barrel brewhouse. I made it out of sweat, cursing, and materials hewn from the earth itself. Its like a manual transmission in a car, yes the machine is easier and probably shifts better than me, but I like to do it myself dammit!

Some of the less automated but still well-equipped turnkey brew systems from Blichmann, Speidel, SABCO, Brewsculptures and the like are pretty awesome too. While they can get quite expensive, they are here. 10 years ago setups like these were either non-existent, or reserved for pilot systems at commercial breweries. So damn sexy.

I am excited about the significant drop in price of stainless fermentation vessels. A 7-gallon conical fermenter used to gouge around \$900 out of your hide. Now, with companies like SS Brewtech, you can get Stainless conical fermenters for \$150 to \$200! There are even glycol units scaled down to homebrewer level! Whirlpool tried their hand at the temperature controlled fermentation vessel market recently with their Vessi system. As ill-fated as that was, it still represents the interest and visibility our humble hobby has piqued with corporate America.

Then there are the ingredients. When I started brewing, in the relative Bronze age, A well-stocked homebrew shop might have a dozen or so grains to choose from, about as many hop varieties, and half that in yeast selection. There were often issues with the freshness of these ingredients because turn-over was low. Now, a LHBS can't even be considered serious without an inventory of 50 or more varieties of malt, hops, or yeast. It seems every year there is new maltster to try, a fresh crop of new hop varieties, or some new hairsplitting yeast strains. It can get complicated.

This makes the hobby so much more accessible to new brewers. Because it is easier to find equipment and ingredients now, more people get into it and stick with it for longer. This is awesome. We now have more perspectives and friends in Homebrewing than before. A larger resource and research pool, and depth of knowledge in the community is good for the craft. I can't wait to

see how much easier life gets in the next 15 years. --DT



## A Changing of the Guard

We all knew it would come to an end someday. One of our club pillars, Jeff Carlson, stepped down from the Treasurership, and I accepted his nomination to succeed at January's PTB meeting. The motion was approved by an underwhelming majority, probably for a lack of any other senseless volunteers. By now, voter's remorse has probably set in. You're probably asking yourself - What makes me a good treasurer? What qualities could I possibly possess that would accord me the rights to be in any position of relative power? Well, I will say that aside from my professional exploits as 'Designated Bad Guy,' I do have great experience helping others with monetary challenges. You see, recently, I received an e-mail from a Nigerian prince in exile who needed me to help him regain his lost fortunes. So, I sent him all of my personal information (this was necessary in order for him to be able to get his money back.). For my help, I'll get half of all of the riches of the Nigerian royal family any day now, which is good because I'll need that money to cover all of these weird charges I've been getting lately. We digress.

As your new Treasurer, I vow to do things differently. Not that the current state of affairs were in shambles, or were they?!? [Only time will tell.] Just because change for the sake of change is, well...err...fun! I mean, what's the sense in getting a brand new shiny toy, if you can't drive it around the block a few times, right? So, in the coming months, after I piece together the severed financials and pull the club out of its financial tailspin, look to see monthly Treasurer's Reports appearing in the Rubber Chicken. In addition, the club will be joining the 21st century and upgrading to digital bookkeeping software. You will probably see me carrying around an iPad to track the financials at future meetings, mainly because I am averse to any actual handwriting, besides the obligatory John Handcock. If you've ever seen my chicken scratch, you would understand why. In the meantime, if you have any ideas about how to put the club's finances to work for its members - please do share. Nothing is off the table. And you can take that to the bank!

Treasurer Moss

## BREWING YOUR OWN BREWPI (PT 1)

By Thomas Malkewitz

(This article was copied from his website. The website article is full of useful links & full size pictures. I did not take the time to include all the links, so if this article interests you, please visit the web page. <https://dotps1.github.io/homebrewing/2018/01/22/brewing-your-own-brewpi.html>)

Like most people, I found out how important controlling fermentation temperature is only after making a huge mistake and letting a batch of beer ferment about 10 degrees Fahrenheit over the yeast strains max temperature. And it was so horrible I had to dump it all,

it wasn't even close to drinkable. And I think my next actions where the same as most others as well, got my hands on an old cheap fridge (stand up freezer in my case), purchased an [STC-1000](#) relay with temp probe, and built something I could control fermentation temperature with.



This is a quick, and cheap solution, and it does work, but the biggest issue I was running into, was temperature swing. I would set my target temperature, and when it would cool, it would sometimes go 2-3 degrees Celsius (yes, I bought a Centigrade controller by accident, and they are one or the other) past the target. Then the heater would turn on and go 1-3 degrees over. And, especially as fermentation wound down, and the beer was creating less of its own heat, this would get even worse. And I'm sure this doesn't affect the beer tremendously, but I still didn't like it. Also it seemed like it was making my freezer and heater work much more then necessary as they where fighting each other. There has to be a better way!

I started my research around the interwebs looking for other ways to build (or buy, but we all know building is more fun) a temperature controller, seems most everyone does it with the STC-1000 or some variation of it, but I kept seeing talk about building a BrewPi. And the more I looked into it, the more interested I became. And at the time, I did have an extra Raspberry Pi laying around, so that made it even more appealing being that is one of the more expensive pieces of the project. The concept is pretty close to the STC-1000, the only real difference is you adding a second temperature probe (or more), and microcontroller (an Arduino Uno in this case) that runs a PID. Basically, the system will learn how your fermentation chamber heats and cools, and it can compensate for the temperature swings. I know what your thinking, how much better can it be then the STC-1000. Well, my first batch I fermented with this held the center of the beer to .01 degree Fahrenheit for the entire primary fermentation process. Now, even if a few degrees doesn't affect it that much, I'm sure that holding the temperature that steady is going to produce a better final product. And, it gets even better, after learning how the profiles work with a BrewPi, you can set it up do all sorts of different things. For example, with my last beer, when I dry hopped it, I set it to slowly bring up the temp to max in the yeast range over a 24 hour period, then hold that for 24 hours for a diacetyl rest, then as quickly as possible, bring it down to 34f for a cold crash, and hold that for 48 hours. And I never have to touch anything for that.

If you've made it this far, im guessing that means your still interested in building one of these bad boys. And that is one of the main reasons of this writing, when I built mine, the info to get it working was spread all over the web, I had a bunch of dependency issues, and one obvious thing, was a case to hold it all, none of the articles or how to's, or blogs, did anyone really ever tell how they have this thing in production. And there is more then a few parts, and well, 110v running in it, so I thought that was a pretty important part, so I'll show what I used for a case to house this controller.

Also, I want to make this clear, the development of the BrewPi over the years has out grown and surpassed what the Arduino is capable of. What does this mean exactly? Well, what you'd be building by following the instructions of this blog, is what would be considered a "legacy" version of BrewPi. The Developer of BrewPi, Elco Jacobs has actually created a pre made unit that is available for purchase, that uses the current version of BrewPi and is actively developed and well maintained. If the DIY thing is not for you, maybe check out the BrewPi Spark. And Because we will be making a legacy version of BrewPi, There will be no software updates or new features, but it is very solid and stable, and does work very well. And, if you really want to make a change or add a new feature, you can always fork the BrewPi Repository, and put the code changes in yourself!

**YOU WILL BE WORKING WITH ELECTRICITY WHILE BUILDING THIS PROJECT, IF YOU'RE NOT COMFORTABLE WITH THAT OR DON'T KNOW WHAT YOU'RE DOING, DO NOT ATTEMPT THIS BUILD. ANYTIME YOU NEED TO WORK ON THE HARDWARE OF THIS SYSTEM ALWAYS, ALWAYS, ALWAYS UNPLUG IT COMPLETELY. THERE WILL BE 110V RUNNING INSIDE THIS CIRCUIT. PROCEED AT YOUR OWN RISK!**

#### SHOPPING LIST

Lets start with a shopping list shall we. Now, you don't need to buy these via the links I am providing, they are merely for context. Also, look in your junk drawer, things like the RaspberryPi and Arduino power supply I found around the house, one was an old phone charger, and the other was to and old light that I hadn't seen in years. The power cable is from an old computer. I used some Romex wire that I already had as well.

(Again, his website contains useful links to all of these items to easily purchase. Sorry, I was lazy)

- RaspberryPi 3
- Arduino Uno
- Two Channel Relay Module
- 8G Micro SD Card
- Three Position Screw Terminal
- Jumper Wires
- Outdoor Sprinkler System Case
- Raspberry Pi 3 Power Supply 5V 2a minimum
- Arduino Uno Power Supply 9v 1a minimum
- Temperature Probes
- 4.7k Ohm Resistor
- Power Cable
- Outlets for the Heat/Cool
- 16 AWG Wire

**CONFIGURING THE RASPBERRY PI AND ARDUINO UNO**  
I think the best place to start with this project is setting up the Raspberry Pi and the BrewPi software. The easiest way to do this is to use the NOOBS installation of Raspbian

from raspberrypi.org (you can install any flavor of Linux you like, but Raspbian is what I have built my BrewPi on). Here is what you will need to configure the SD card using Windows, sorry if your using Linux to copy the image to the SD card, you'll have to figure out those steps yourself (Same goes for flashing the hex file to the Arduino Uno):

- NOOBS
- SD Formatter

Installing Raspbian on your Raspberry Pi is pretty simple:

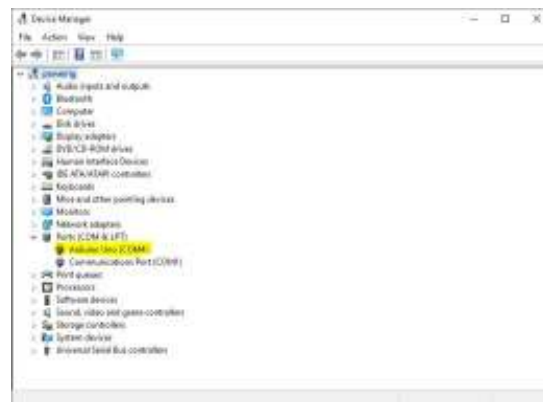
1. Plug the SD card in to your machine.
2. Run the SD Formatter program and format the SD card.
3. Extract the NOOBS zip folder.
4. Copy all the contents from the extracted folder to the formatted SD card.
5. Insert the SD card into the Raspberry Pi after the file copy completes.
6. Power up the Raspberry Pi
7. Install the Raspbian Linux Distribution.

Now, the install will take about 10 minutes, while it is going, go ahead and plug the Arduino Uno into your computer via a USB cable so you can flash the BrewPi firmware onto it. You will need to download the following items for this:

- BrewPi 2.10 Arduino Uno Rev C Firmware
- Arduino Sketch Uploader 3.1.0 (latest version as of this writing)

You need to identify the COM port the Arduino Uno is on, to do this open your Device Manager:

- Start Menu -> Type Device Manager.
- Expand out the Ports (COM & LPT) section and note the number.



After extracting the Arduino Sketch Uploader, flash the hex file to the Arduino Uno via the Windows command line replacing DownloadPath with the file path to the location of the hex file and Number with the number you found in Device Manager:

- `ArduinoSketchUploader.exe --file=<DownloadPath>brenpi-arduino-uno-revC-0_2_10.hex --model=UnoR3 --port=COM<Number>` you'll see a bunch of text go across the screen, just wait until the command prompts comes back, only takes a minute or two.

**back to the pi.....**

After the completion dialog box for the Raspbian install on the Raspberry Pi comes up, go ahead and reboot it. After the Raspberry Pi comes back up, it will auto login to your new install of Raspbian. Now there are a few basic configuration you are going to want to change to the system before we get started:



- Open the Raspberry Pi Configuration Menu



On the System tab:

1. CREATE A PASSWORD, by default there is no password, do not leave it this way, there is no reason to.
2. Give it a hostname, I called mine brewpi (no surprise there).



On the Interfaces tab:

1. I enable ssh here, this will allow you to interface with the terminal remotely, I don't keep a keyboard and mouse hooked to this after the initial configuration, so I would suggest enabling this, and this is also why a password is good, so not just anybody can ssh to your BrewPi (you may see many more interfaces on your system, this is because I'm emulating this on a virtual machine so I can take screen shots).



On the Locale tab:

1. At least set the timezone.
2. Set the location if you'd like, the rest you can leave defaults

It may ask you to reboot after these settings, select the option to reboot later, and connect to your WIFI before rebooting the Raspberry Pi.

1. Just click on the icon in the top right (again, I'm running on a VM, so it doesn't see the bound adapter as a wireless adapter)

select your network, and authenticate



- Now reboot (the reboot option is under the Raspberry Menu, same place as step 1).

For the rest of the Raspberry Pi configuration, I'm going to be using a remote connection via SSH from my actual workstation, you can leave your keyboard and mouse plugged in, and use the bash terminal and run all the same commands. I'm doing this because if you like me, you have an old rickety keyboard, some crappy monitor, and no mouse hooked up, so SSH is just easier. I'm not going to go into detail about SSH from a Windows machine, you can search that out if you'd like, there are more than a few ways to use SSH from Windows out there (none enabled by default unfortunately). I am using the SSH client that comes with MINGW64, which I have installed because I use Jekyll and Ruby, which is what this blog is written with.

- Connect to the Raspberry Pi via SSH, the default user name is pi:
  1. ssh pi@brewpi
  2. Type yes to confirm the host certificate fingerprint.
  3. Authenticate with the password you set earlier.



Update your Raspberry Pi (Packages and Firmware)

1. sudo apt-get update --fix-missing
2. sudo apt-get upgrade
3. sudo apt-get install rpi-update
4. sudo rpi-update
5. Reboot after all of these commands have completed sudo reboot.

To be continued....

Or, if you can't wait, go to his website with all the links & big, fancy pictures.

<https://dotps1.github.io/homebrewing/2018/01/22/brewing-your-own-brewpi.html>

## January Meeting Notes:

First, a huge thank you to Jeff Carlson for his years of service in various officer positions within the club. He has been treasurer since 2008, & President for several years before that. Thank you Jeff for your leadership & guidance that has helped make this club what it is today.

A couple of club officer positions were up for election. Vice President Ric Brown ran unopposed to keep the position for the next 2 years. Matt Moss ran unopposed for Treasurer for the next 2 years. Good luck, Matt. Two Steering Committee seats also

turned over. Ric Brown & Kathy Troxell stepped down, with Ian Purvis & Paul Curran stepping up.

There was a large turnout for this meeting, with 4 new faces. We recapped the Christmas party & brewer of the year. Also discussed the upcoming Chili cook off that the Brewsquitos are hosting Feb 17. The next Thursty Thirsday destination is Founders, where Jeff's beer should still be on tap. February 3rd will be the next club brew day, at Smead's house. The next club meeting will be at Bier Distillery, where Joel will give a tour & discuss the distilling process.

Send PayPal payments to: [primetimebrewersmi@gmail.com](mailto:primetimebrewersmi@gmail.com)

# **PRIMETIME BREWERS COMPETITION PAGE**

## **2018 Competition Schedule**

January: Oatmeal Stout (16B)  
February: Best of Cellar Beer (1-34)  
March: New England IPA  
April: Best of Cellar Cider (All)  
May: Wee Heavy (17C)  
June: Beer and Food Pairing Dinner  
July: Standard American Beer (1A-D)  
August: Best of Cellar Mead (M1-4)  
September: Pilsner Extract Beer any style, no barley products but the extract. Corn, Rice, or Rye adjuncts allowed.  
October: Marzen, Vienna Lager, and Festbier (6A, 7A, and 4B)  
November: SMASH Beer any style  
December: Christmas Party  
Non-PTB Competitions can be found at:  
[www.homebrewersassociation.org](http://www.homebrewersassociation.org)

## **2018 Brewer of the Year Results**

Chad Zomerlei	12
John Applegarth	8
Jessie Colclasure	4

Future RC or Food contributors:  
Paul Curran  
Jessie Colclasure  
Ric Brown

## **2018 First Thursday Destinations**

Jan	City Built
Feb	Founders
Mar	The Mitten
Apr	Railtown
May	Osgood
Jun	Cellar
Jul	Thornapple
Aug	Gravel Bottom
Sep	Two Guys
Oct	New Union
Nov	Pike 51
Dec	Brewery Vivant

## **Club Officers**

President: Jeremy Gavin	(jabrews@gmail.com)
V. P.: Ric Brown	(ricbrown67@gmail.com)
Treasurer: Matt Moss	(mossford11@gmail.com)
Sec & RC Editor: Chad Zomerlei	(zomerlcp@gmail.com)

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THEY SUPPORT US!!**

## **SAVE THE DATE(S)**

February 17 Brewsquitos Chili Cook Off  
February 23-24 13th annual Winter Beer Fest

Other events at: Primetime Brewers Facebook page

## **January Oatmeal Stout Club Competition Results:**

1st	Chad Zomerlei
2nd	John Applegarth
3rd	Jessie Colclasure
Last	Tom Malkewitz

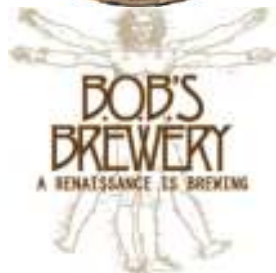




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