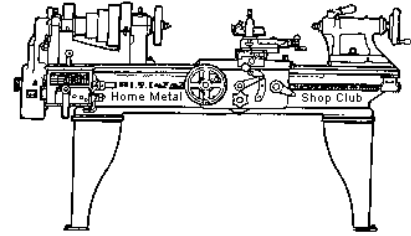




October 2017
Newsletter

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<http://www.homemetalshopclub.org/>

The Home Metal Shop Club has brought together metal workers from all over the Southeast Texas area since its founding by John Korman in 1996.

Our members' interests include Model Engineering, Casting, Blacksmithing, Gunsmithing, Sheet Metal Fabrication, Robotics, CNC, Welding, Metal Art, and others. Members enjoy getting together and talking about their craft and shops. Shops range from full machine shops to those limited to a bench vise and hacksaw.

If you like to make things, run metal working machines, or just talk about tools, this is your place. Meetings generally consist of **general announcements**, an **extended presentation** with Q&A, a **safety moment**, **show and tell** where attendees share their work and experiences, and **problems and solutions** where attendees can get answers to their questions or describe how they approached a problem. The meeting ends with **free discussion** and a **novice group** activity, where metal working techniques are demonstrated on a small lathe, grinders, and other metal shop equipment.

President <i>Brian Alley</i>	Vice President <i>Ray Thompson</i>	Secretary <i>Joe Sybille</i>	Treasurer <i>Emmett Carstens</i>	Librarian <i>Ray Thompson</i>
Webmaster/Editor <i>Dick Kostelnicek</i>	Photographer <i>Jan Rowland</i>	CNC SIG <i>Martin Kennedy</i>	Casting SIG <i>Tom Moore</i>	Novice SIG <i>John Cooper</i>

This newsletter is available as an electronic subscription from the front page of our [website](#). We currently have over 1027 subscribers located all over the world.

About the Upcoming 11 November 2017 Meeting

The next general meeting will be held on 11 November at 12:00 P. M. (Noon) in meeting room of the [Parker Williams Library](#). A video of Don Foster's Steam Engines will be shown.

Visit our [website](#) for up-to-the-minute details, date, location maps, and presentation topic for the next meeting

General Announcements

[Videos of recent meetings](#) can be viewed on the HMSC website.

The HMSC has a large library of metal shop related books and videos available for members to check out at each meeting. These books can be quite costly and are not usually available at local public libraries. Access to the library is one of the many benefits of club membership. The club has funds to purchase new books for the library. If you have suggestions, contact the [Librarian Ray Thompson](#).

We need more articles for the monthly newsletter! If you would like to write an article, or would like to discuss writing an article, please contact the [Webmaster Dick Kostelnicek](#). Think about your last project. Was it a success, with perhaps a few 'uh ohs' along the way? If so, others would like to read about it. And, as a reward for providing an article, you'll receive a free year's membership the next renewal cycle!

Ideas for programs at our monthly meeting are always welcomed. If you have an idea for a meeting topic, or if you know someone that could make a presentation, please contact [Vice-President Ray Thompson](#).

Reminder: Yearly club dues were due at the September meeting. Dues are fifteen dollars (\$15.00) and payable to Treasurer Emmett Carstens. He will accept cash or a check made payable to him.

Recap of the 14 October 2017 General Meeting

By Joe Sybille, with photos by Jan Rowland



Thirteen members attended the 12:00 P.M. (Noon) meeting at the Fort Bend County Library, University Branch, 14010 University Blvd., Sugar Land, Texas 77479. There were two visitors in attendance, George Zoes and John Legrand. There are seventeen members in good standing with the club.



President Brian Alley led the meeting (right photo).

Presentation



Club member, Brian Alley, gave a presentation on his recent tour of Soule' Steam Feed Works of Meridian, Mississippi. Soule' Steam Feed Works is a former industrial manufacturer of steam powered machinery. George Soule' founded the company in 1895. The company built its last steam engine in 1982 and closed its doors in 2002. The Mississippi Industrial Heritage Museum now owns what is left of the former company and is entrusted to preserve its history.

Brian showed pictures and described the equipment in the former company. There are examples of equipment built in the early 1900's that are still in use today. Examples include arbor presses, drill presses, lathes, and shapers to name a few. The foundry had a capacity to make machinery parts weighing up to 1500 pounds. There is even a bandsaw sharpener, something important during the era in which the company operated since there was no convenient supplier of bandsaw blades.

There is a fully equipped blacksmith shop with tools of the era in place as if the former workers were returning to work the next day. A functional linotype machine served as the printing press. Also, one can see a broom stitching jig there.

There is a Soule' Live Steam Festival the first weekend of every November that features demonstrations of portable and stationary steam engines, belt driven equipment in the machine shop, and other machinery enthusiasts demonstrating their crafts.

[Here is the link to Brian's presentation slides.](#)

Safety Moment

President Brian Alley showed a safety video on unsafe work practices both at work and at home.

Show and Tell

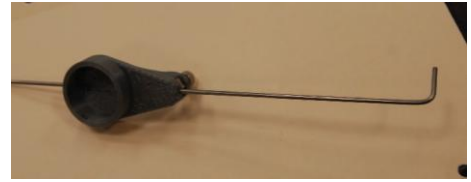


Visitor *John Legrand* showed and donated to the membership several tools cast aside in the aftermath of Hurricane Harvey. Two of the tools are shown in the left and right photos.



Brian Alley showed an alignment tool he designed and made for adjusting the axle on a motorcycle. See right photo.

Brian also showed a collection of small tools he recently acquired at a bargain sale. See photos below.



Problems and Solutions

A member asked for suggestions on the best weld process to use for assembling a rod bender he is making from plans found on the internet. Several suggestions were offered.

Another member asked for recommendations on which cutting fluid to use when turning aluminum 6061. Recommendations included both odorless mineral spirits and turpentine.

A visitor wanted suggestions on the best way to cut the heads off spent shotgun shells and spent bullet casings. Several suggestions were offered.

Articles

Joystick Input for CNC

By Martin Kennedy

I use my CNC lathe with a touchscreen. I'm using LinuxCNC with the Gmoccapy display. This works great for most functions. However, on-screen buttons are difficult to use when moving the carriage around manually. It's easy to have your finger slide off or miss the on-screen button when you're looking closely at the lathe instead of the screen, which you may be doing when you need some fine control during set-up.

I thought that it'd be nice to have real instead of virtual buttons to control the movement. My first thought was to wire discrete buttons to the parallel break-out board inputs. But when I looked at the number of functions I wanted, I saw that I would quickly run out of inputs. It would be better if I could use the USB port for input.

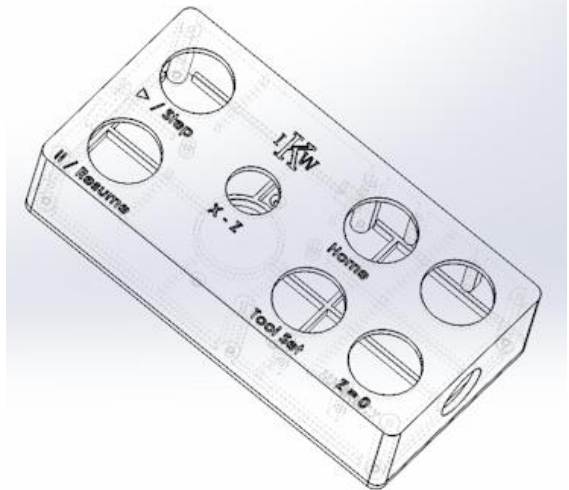
Then, I thought I'd use a USB keypad. I looked in to what was available, and found that the options were limited and expensive. That led me to think about using a joystick controller. I found some information where people had used a gaming keypad, but that didn't seem very robust or industrial to me. I wanted something like you see on Arcade videogames – built to take abuse.



I know that people build 1980's style videogame enclosures. They run the games on a computer running the MAME emulator and the original ROM chips from the games. So how do they get input? It turns out that it's fairly easy. USB input joystick and button kits are available, and inexpensive. On eBay, search for "MAME joystick". The picture is of the kit I bought. It has a four way joystick, eight momentary contact buttons, two smaller momentary contact buttons, and the electronics to convert them to a USB input. If you purchase one of these, note that it does not include any instructions whatsoever. I found some instructions online that described what plugged in where at <https://www.modmypi.com/blog/arcade-usb-encoder-wiring-guide>.

The next thing I needed was some sort of enclosure for the joystick. I was going to purchase a box, but realized that I could make my own custom box – with my 3D printer. I designed the box to already have all the holes and internal supports that I needed.

I used the joystick to move the carriage in the X-Z plane. I added buttons for several functions – Power on/off, eStop, Homing, Probe for my tool setter, Run/Step and Pause/Resume, Stock Z=0, and a button to put the X-Z joystick in turtle mode. The kit had more buttons than I used, but I could not think of anything to have them do. Additionally, my 3D printer bed is 8" wide, and I used most of that for the box I made. If I identify a desired function in the future, I can just revise and reprint the box.



The last phase of the project was to modify the LinuxCNC hardware abstraction layer (HAL) file to read and act on the inputs. This took a while, but I eventually figured it out. LinuxCNC configuration is not for the squeamish, and describing how this all works is way beyond the scope of a brief article.

I think that the project came out really well. Total cost for the project (including the box) is in the range of \$25. I have a pendant for the lathe already, but I find that for some functions, it's better to have buttons and the joystick.



I'm currently running Mach3 on my mill, and at some point I'll likely build another one of these for it. The only thing different will be figuring out how to make the software work with the joystick. In general, Mach3 is easier to configure than LinuxCNC, and a quick search shows me that there's a JoyPad device plugin available from machsupport.

[Click here for a zip file containing the following files for the project.](#)

Here are links to the files for the project.

STL file for box with text

STL file for box without text

STL file for box back cover

STL file for eStop button

LinuxCNC HAL file (note – I also have a pendant, and the controls for it are interwoven into the controls for the joystick box. You will likely have to edit this file and remove stuff.)