

Becoming a Droid Builder

A New Builder Guide

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Welcome!

Welcome to the guide! If you have made it here then you have taken the plunge into becoming a Droid Builder! This community is made up of various clubs building different droids: R2 Builders, BB8 Builders, Mouse Droid Builders, T3 Builders and many more. The club is vast and wide and within the past few years has paved the way for many other types of droids to come into the community.

This guide is part of a series that aims to help you as a new Droid Builder in your journey to building a droid, they will all offer tailored guidance and advice that points you in the right direction.

What are we?

As the name and logo suggests, we build droids from Star Wars but that is certainly not the only thing we do. We are a community, we are people who are passionate about what we do and we take great pride in our droids. Everyone in the community is very friendly and helpful and you shouldn't have a problem making some new friends and learning new things!

Originally, when the club formed it was an R2 Builders Club, mostly because R2 was almost the only droid that people built from the original films other than a Gonk Droid and a MSE (Mouse) Droid. Since then, there have been many more droids introduced into the Star Wars Fandom that builders have worked their magic on. If you've seen it in a film, TV show or Game, there's a good chance there is a group of people working on a build.

We do a lot of charity work as you may have already seen from public events collecting money, requested appearances all the way to weddings and hospital visits. We do a lot of work with Star Wars costuming groups as well such as 501st, Rebel Legion and many more.

Things to know before joining

There are many things each builder should know and understand before joining to make sure you want to begin this journey.

It's a builders club, not a selling club

First and foremost, we need to get this out of the way, we do not sell droids. We are a builders club, we build them. Occasionally, a builder will need to pack up and sell their build. Most of the time they're part finished builds but you do occasionally get fully completed droids that the builder is willing to sell. If you have come here looking for somebody to sell you their droid, make all the parts so you can put them together and have a droid or even build the droid for you then I'm afraid you are in the wrong place.

Commissions

Another question I see quite often is builders who attempt to pay another builder to make their droid. Helping out other builders is one thing, paying a builder to build your droid for you is quite different. The whole point of this journey is that you build a droid, you learn things that you didn't know before but the bottom line is that you build your droid. If you are only interested in having somebody else do the work I would suggest you go and buy the 1:1 Scale R2-D2's from Disney instead.

Commitment

Building an R2 is not a quick process and anybody who tells you differently hasn't built one before. The duration for these builds can vary with the shortest one I know of taking around 3 months and the longest one I'm aware of having taken over 10 years. Commitment is something which, I've found, will come and go. Every now and then, you will have times where you want a break from Droid Building and you will also have times when you want to do nothing else except droid building!

Timescales

As I mentioned above, building any droid isn't a quick task. Some droids are quicker than others to build. For example, a Mouse Droid is one of the quicker ones because it's a much smaller droid than R2, with a lot less features.

The time it takes to build your droid entirely depends on you and one of the best things I like about this journey is that there is no deadline or time limit on your build. It's a hobby after all, not a full time job, so you'll find that you can spend as much time as you want on your build.

Not a quick project

Similar to my previous paragraph about timescales, and something I cannot stress enough, is the fact that building any droid isn't quick and something a lot of new builders may not understand is just how much of a commitment this build really is. There is a lot more that goes into building a droid than people think, it's not a case of painting a few things, and sticking a few parts together. Sanding, filling, priming, repeat is a process that you will hear a lot regardless of the material chosen, and is itself a very time consuming process, needed for nearly every single part.

As well as the time spent building, there is the time spent learning and researching, but this can vary. I have found that, with this build, you get out what you put in. There are a lot of people who put so much effort into their droids, for example spending around a month sanding, filling and priming the same part to perfection, so that once that part is completed it shows just how much time and effort they put into it.

If you ask a range of builders, most would say that their droid is never going to be 100% done. This is due to a common thing to occur amongst builders which is the constant desire to make things better and you will experience this at some point, I'm sure. Whether that is repainting, patching parts you want to do better, adding extra functionality etc, most of you will probably always have something more you want to do and that's perfectly normal! All of this will add to the overall time spent on your build.

Learning Process

You may already have droid building knowledge and not even know it. Working with tools, electronics, 3D Modelling / CAD work, painting etc are all beneficial to a droid builder. People will know more than you, people will know less than you and the best thing you can do is learn as much as you can. The Astromech.net forum is a Droid Builders' Holy Grail for knowledge and tips from various builders who have figured easier / better ways of doing things.

The way the community functions is that people are constantly passing on knowledge to others. People are always coming up with different ways of doing things and then you have people who will improve upon that in different ways. The best thing about this community is that, every time somebody does something, they write up what they have done, take pictures, record videos and share with others.

You should be prepared to learn a lot of things during your build. Some of the things you will learn will be directly related to your droid whereas others would be things such as how to operate your tools, building things that will make your life easier such as spray booths for painting, building a table router, building an enclosure for your 3D printer etc.

I have found that the skills you learn during this build aren't limited to Droid Building, you can use them outside of your droid. If you learn the electronics for R2 and the programming side

of things, you could probably go and make some custom light displays. If you learnt plenty of woodworking skills, you could make some great projects out of wood so anything you learn on your droid building journey can be used outside of the droid building world.

Where do I go?

Amongst the questions I see constantly from new members is one asking where they need to go to begin their build. In this section, I will provide as many links as I can for you to find where to go!

Astromech.net

The first stop for you as a new builder should be the main Astromech forum - <https://astromech.net/> - The Astromech.net forum is where you will find all of the build logs from various builders, all of the plans and every bit of knowledge you will ever need to build a droid. Some parts of the forum can be tricky to navigate for new builders but all of the other builders are here to help if you get stuck. Whilst Astromech.net mostly caters to Astromechs, there are places to talk about other droids including BB-8 and Chopper as well as various other websites, forums and groups for other droids.



Once you have registered, make sure you introduce yourself in the New Member Central area, this is where you'll meet other builders, get bits of advice on how to start and it's a great way to find other builders from your location. There are many sections of the main forum and it can be quite daunting at first but I'll show you where you would need to go to find various things!

Parts Sections

Depending on the nature of your build, you will normally need to buy some parts for your droid. The main place is the Droid Parts section. However, you could get parts cheaper in your local club areas or even from local stores. The Parts Runs on the Astromech.net forum are all authorised BC (Builders Council) runs. This means that somebody on the Builders Council has checked the part you're wanting to buy, made sure it fits the advertised droid i.e. CS:L/CS:R etc and it's good quality. This means that when you order from an authorised

parts run, you are getting good stuff. Your local clubs may offer parts as well and they too should be authorised by the BC as well as people will share links to where you can buy certain things from legitimate companies.

You will see things on eBay, Facebook Marketplace advertised as “Lifesize R2D2 Kits” or something similar, these are **NOT** authorised BC runs and I will explain more about this later.

The Plans

One of the most common questions I see being asked is “Where can I find the plans to build R2?”. If you look to the top of the forum, there is a button labeled BLUEPRINTS. Head over there and you’ll be shown many different types of plans. Once you do your research on your droid, you will know which plans to use, if you decide to go down this route. If you’re not building an R2, your droid group will be able to point you in the direction for plans/ files.

FORUM
MEMBER MAP
CHAT
DROID WIKI
GALLERY
BLUEPRINTS
FAQ
SEARCH
GO

ADVANCED SEARCH

DOWNLOADS
SEARCH DOWNLOADS ▾

Category	Description	Files
01-Official	Official Club Blueprints Sub-Categories: CS-L Blueprints , CS-R Blueprints , Dave Everett Styrene Files , Club Brochure	148
02-Derivatives	Sub-Categories: R6 Head Blueprints (droidmech2002) , 300mm Dome (Daren Murrer) , R5-D4 Blueprints , Senna Files	65
03-Official 3D Parts		12
04-Other	Historical Archive of useful files from the R2 Builders Yahoo! Group. Read-only. No new files will be added most likely. Sub-Categories: 2-3-2_Mike Lambert , Styrene Droid Contrib , R8 and R9 pics-judgementx3 , R5-D4 Sounds-Rob Meyer , R4 Templates , R4-G9 Sounds-Rob Meyer , PCB Design&Gerber Files-michaelterwin , New R5D4 Sounds-Han_Sagan , Monsieur Toxs Flatpack Files , Hand-cutting R2 Skin Files-angel_wip , Gary Companions 2-3-2 , Franz Pirz Drawings , Examples-Wiring Diagrams-JAG , Droid Power Distribution PCB-mhamester , Dome Drive-JAG-arioch2k1 , CuriousMarc Dome&RadarEyePlan , 3D part files-mjustice2001 , Teds Files-Buhatkj	72
05-Archived	Historical out-dated/old files from the R2 Builders Yahoo! Group. Kept for historic purposes. Double check before using any measurements from this section. Read-only. Sub-Categories: Miscellaneous	48

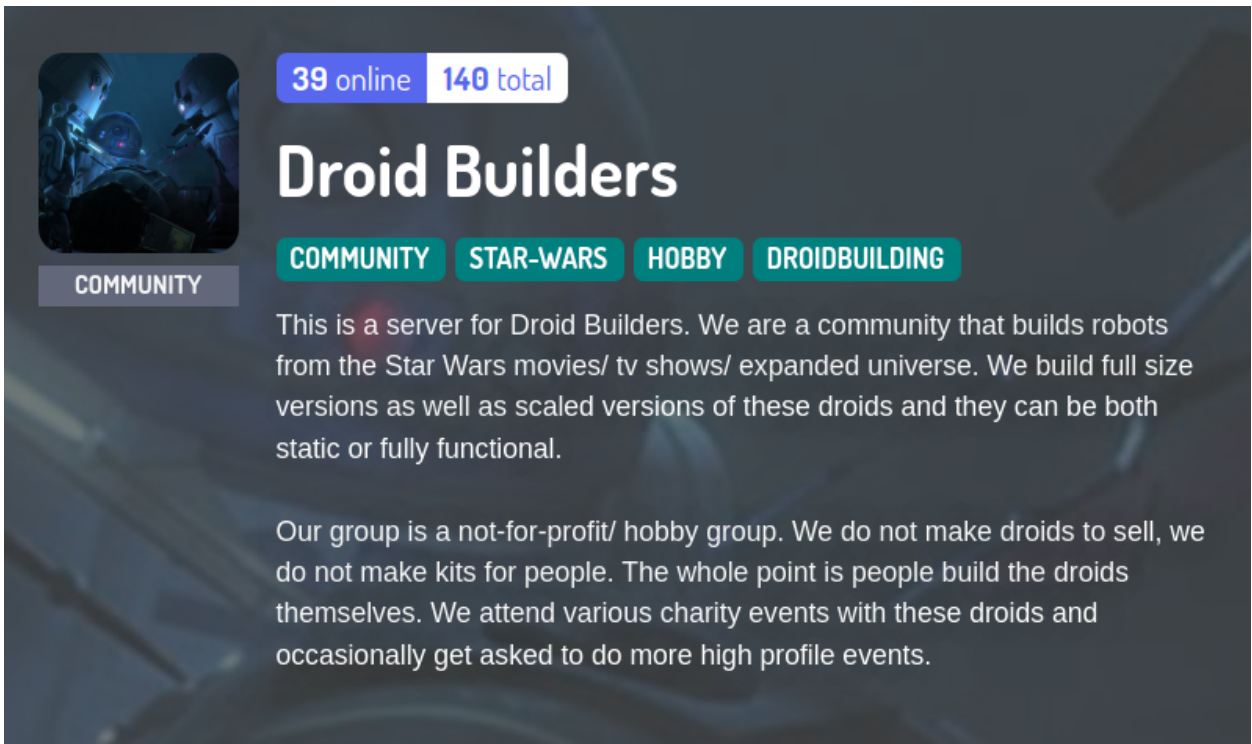
Droid Builders Discord Server

The Droid Builders Discord Server was an answer to a number of questions asked by builders. The Astromech.net forum does have its own built in chat however we wanted a more modern approach to things. We decided that Discord would be an ideal platform, originally made for gamers to be able to instant message people whilst streaming games as well as being an open source program, there was a lot we could do with it. Discord is an app that can be downloaded to your desktop, tablet or mobile and is a fairly secure platform to talk on. Our server has multiple channels specific to certain topics such as R-Series, BB-Series, Mouse, Gonk Droids as well as dedicated channels for things like working with different materials, sharing links to your build logs and websites, health support and even a spoiler channel for those who want to chat about new things star wars.

We have a Cantina chat which is an audio/ video channel you can join at any time and speak with other members. There are roles available such as the R-Series role which, when applied, lets people know what droids you are building but also lets you see other people building that kind of droid if you have specific questions. The server features multiple custom bots such as Artoo and C-3PO which provide entertainment as well as are generally helpful in providing links, images and other useful things.

We have members from both the older generation of builders as well as new builders and the best thing about this server in my opinion (I know I'm rather biased to the server) is that the server has a zero tolerance policy on toxic atmospheres. We encourage healthy debates between builders on everything and the members of this server have plenty of them but they are always respectful and remain constructive. Every new builder is welcome regardless of what you are building and what you're building out of.

The Discord Server is a great way to get fairly quick information as people are chatting there most of the time. Members from all around the world help make this server what it is and somebody is always there to help. There are regular updates to the server, new additions made and one of the best parts is we are perfectly happy for members to suggest things for the server to be added/ changed.



(Image provided by Rob Howdle)

I always recommend people join the server as even when we're not talking about droid building, it helps bring people together as a community. A number of people have commented that they love the server simply because they feel more part of the community there, of course that doesn't mean you shouldn't join the forum or facebook groups as they are valuable resources however the Discord Server is such a welcoming community for all. A lot of laughs, a lot of helping, a lot of encouragement and quite simply a lot of friends.

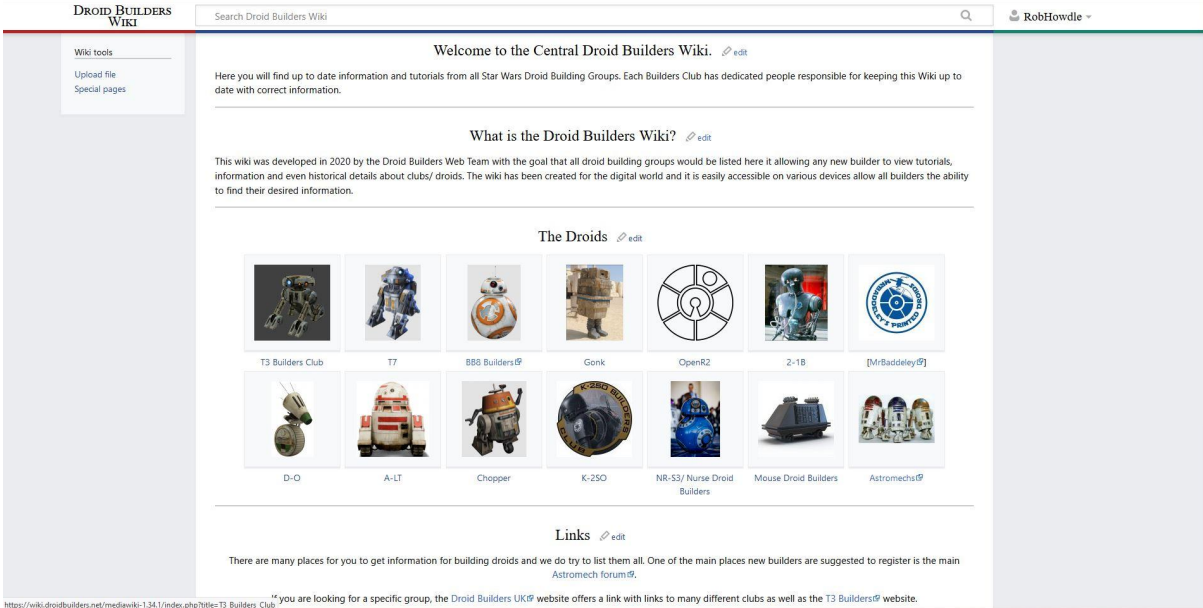
If you are interested in checking out the Discord Server, you can find the link here - <https://discord.gg/4ZV9DmY> - You will need to create a Discord account but if you have any trouble with that you can contact me or contact the [Droid Builder Web Team](#).

Droid Builder Wikis

Droid Building wikis are very helpful when you want to find information. Different groups have occasionally made their own wiki specific to one type of droid which stores all the information about building that droid, including written guides, links to websites, youtube videos etc.



In 2020, the [Droid Builder Web Team](#) created the new Central Droid Wiki. This wiki reconciles many droid building groups in one single place to make it easier for you to find all of the information you need, rather than having to spend more time trying to locate information. Each group uploads all the information about their droid in an easy to view format for new builders to learn from. Wikis are also constantly updated with new information about building the droids, which should all be documented, thus making your research easier. You can visit the Wiki [here](#).



The screenshot shows the homepage of the Central Droid Builders Wiki. At the top, there is a search bar and a user profile for RobHowdle. The main content area is titled "Welcome to the Central Droid Builders Wiki" and includes a brief introduction. Below this, there is a section titled "What is the Droid Builders Wiki?" followed by a grid of droid categories. The categories are: T3 Builders Club, T7, BB8 Builders, Gonk, OpenR2, 2-1B, [MrBaddley], D-O, A-LT, Chopper, K-2SO, NR-S3/ Nurse Droid Builders, Mouse Droid Builders, and Astromechs. At the bottom, there is a "Links" section with a note about finding specific groups.

Local Clubs

As there are droid builders worldwide, there is normally a local club near you. I have created a section on the T3 Builders website where you can search your location and it will reveal any club related to your search. You can find it here in case you wish to use it: [T3 Builders Group](#) - this is mostly beneficial for people outside of the UK. The Droid Builders UK website also has a similar function, which you can find here - <https://droidbuilders.uk/global-links/>

Some local clubs may have their own forums, websites, Facebook groups etc. These are all great tools to help you along your journey. Here in the UK, we have the UK R2 Builders Forum, astromech.info, as well as www.droidbuilders.uk which have all the information related to UK Droid Building.

The screenshot shows the homepage of the Droid Builders UK website. At the top is a navigation bar with links for HOME, NEWS, CLUB LINKS, MERCH, EVENTS, and CONTACT. The main header features the 'DROID BUILDERS UK' logo in white and red, with silhouettes of various Star Wars droids. Below the header, the page is divided into several sections:

- DBUK 2020 LIVE - SATURDAY AUG 1ST:** A section with a 'LIVE' badge and a graphic of droids.
- Home:** A central section with a message: "Due to current circumstances we will be awaiting Government Clearance before attending further events." and "Also, please note for any recent orders there will be a delayed in posting." Below this is a welcome message and a photo of several droids.
- RECENT NEWS:** A list of news items on the right side, including "NEW DBUK 2020 LIVE PATCH", "DBUK LIVE 2020 SCHEDULE", "DBUK2020 LIVE SCHEDULE ITEM SNEEK PEEK", "UK R2 BUILDERS 10TH ANNIVERSARY", "DBUK 2020 UPDATE", and "FOLDING@HOME WITH THE DROID BUILDERS".
- DBUK 2020:** A section showing a countdown timer for "22 12 26 05" days.
- BUILDER PROFILES:** A section with a profile for "ANDY SMITH".

Facebook Groups

A new form of community has come to light through the use of social media, mostly making use of Facebook Groups. Facebook itself has pros and cons for its uses by Droid Builders. Some builders tend to stick to Facebook for its ease of use whereas others tend to stick to the forum. Whilst Facebook has its uses and it's a great modern tool for builders to use to share their progress, interact with other builders and have discussions with other builders, it shows its limitations around sharing files, posting bits of knowledge and most importantly trying to find information. Facebook is very bad for this which is where the forums and wiki shine!

DroidBuilders UK
Public group · 160 members

About Discussion Announcements Members Events Media

What's on your mind, Rob?

Photo/Video Tag people Feeling/Activity

New activity

Ian Yates
22 April at 22:09 · 🌐

The primer I found yesterday was in full working order!!
Pleased with my first coating, not much evidence, if any, of the three seam lines on the triangles. A light sanding and one more pass and I'll be happy. Any imperfections following that are gonna be weathered within an inch of their lives...
Now to hide the seam lines on the rings (ugh) and inner circles (double ugh), dome is pretty much ready for primer.
A good day!

About
"Droidbuilders UK" is to compliment all droid building groups UK & EU and have a hub of like-minded people working towards creating new and exci... See more

- Public
Anyone can see who's in the group and what they post
- Visible
Anyone can find this group
- London, United Kingdom
- General group

Popular topics in posts
DBUK2020 (1)

How to get started

The advice that is given to new builders when they ask where to begin is pretty standard. Other builders will tell you to make sure you're on the forums, to join up with any local clubs whether that's on their own forums or Facebook groups etc. These are good suggestions as there is so much information on the forums that you can read and learn from but don't worry: nobody expects you to memorise every bit of information. There are many decades worth of information on building a droid!

You can visit https://www.t3buildersclub.co.uk/builders_groups.php and search your location to see if there are any builder groups in your area.

Research

Research is key, it's that simple. If you don't do your research, you will struggle and find yourself having to ask a lot of questions. Research is made up of many sections and you might want to do more specific research on certain topics when you are closer to the time but you should always look over things first just to make sure you've covered all the areas before beginning your build. The average time a typical builder spends researching and planning their builds is around 6 months but that doesn't mean you have to spend 6 solid months reading posts and build logs everyday. So, what exactly should you be researching? There are a lot of things you need to think about so below is a list of the different things you should be thinking about when planning your build.

- What is your budget?
- What material are you wanting to build from?
- What type of droid do you want? R2-D2 or a general R-Series, Mouse, Gonk, T3, BB8 or BB-Series, Chopper etc
- What experience do you already have?
- Do you want your droid to move or to be a static prop?
- Do you want electronics in your droid?
 - If so, what electronics? - Dome, Drive, Panels, Arms etc.
- Are you looking for a replica R2 or more of a custom one?
- Do you want to build a movie droid or do you want a custom droid?

Those are just a few questions. Every builder you speak to will give you another question to think about but, as you plan your build, you will find even more questions. Let's take a look into some of the most important questions and go into some detail about them.

A lot of research can be done through various means. If you want to make your droid out of wood for example, you don't just buy a bunch of wood and begin building, you have to learn about making things out of wood. This then takes you off the droid building path ever so slightly and you then learn about wood, tools for woodworking, techniques for working with wood and so on. You can think of it like a tree where the main body of the tree is droid building and each branch of something else you need to learn in order to complete that part

of the droid build. A lot of it is practising something before you begin that part of your build, afterall would you practise driving in a £100,000+ sports car? Probably not.

YouTube Resources

Thankfully, our community is full of people who really want to help others and try to take what can be very complicated and confusing to some and try to make it nice and simple. We also like to document our builds and some enjoy typing them up in a blog format, others like to do facebook posts and some enjoy making videos. These can be found anywhere but one I would like to draw attention to would be a YouTube channel by John Salt. John decided to document his build progress in some very helpful videos where he explains everything very clearly and in a lot of detail. Whilst it's impossible to list everything, he does his very best to give a lot of coverage and I found his videos to be a video version of exactly what I am trying to achieve with these guides.

I would suggest checking out his R2 Playlist as well as the rest of his videos - you can link the [link here](#).

I will attempt to update this section with any other specific channels that I come across.

History

An interesting thing that most builders enjoy reading about is the history of R2 and other droids, especially those droids from the Original Trilogy. There are many different ways to research this and some builders make a point of building their droids as close to the original versions as possible. NK Guy from Astromech has created a website giving you as much information about the history of all of the R2 versions from the earliest to the latest. Most find it very interesting to see how it went together, what it was made from and how much droids have advanced since then. You can visit that website by [clicking here](#). For other information about the original R2-D2, you should visit the [OpenR2 Wiki Page](#) which has additional information and links to the original build.

What droid do you want to build?

When the club was first formed, R2 was the droid everyone was building, mostly because that was the only droid around, other than maybe a mouse droid but R2-D2 was the main one. Since then, a bunch of other clubs have opened up, building various droids. If you spot a droid at any point in Star Wars chances are there is a Builders Group for it.

So how do you pick which droid to build? Well, most people getting into droid building instantly go for R2-D2 and there is nothing wrong with that! R2-D2 is an iconic character and a great build with plenty of information about it. With more and more droids being introduced into Star Wars either in films or other media, more people are building other droids. It is your choice what droid you want to build but a lot of builders tend to go with a smaller / less complicated droid for their first build. A Mouse Droid is always a good one to go for to get

started and begin to learn about systems, putting things together, printing / building and painting etc.

Club Spec...

If you are building an Astromech droid, the first thing you should decide is whether you are going CS:L or CS:R and these are two things that you will see everywhere. CS:L or Club Spec Legacy are the original plans from the early days of the R2 Builders that were agreed upon by many different people. After many builders started creating droids, different builders did different things and after a long review of the plans and gathering of more data for a much more screen accurate R2, the CS:R or Club Spec Revisited plans were born. Both versions are still supported and, although the CS:L files tend to have more parts readily available, a lot of people building from aluminium go down the CS:R route for accuracy. This is an essential part of your research and will prove vital when either buying or making parts. You can find more information about the differences between the plans as well as a chart for compatible parts here - https://astromech.net/droidwiki/CSR_Overview_and_Files

What material do you want to use?

The droid you are planning to make largely dictates your material choice. For a Battle Droid for example, aluminium or wood would be hugely complex, time consuming and impractical. The best choice would be a 3D Print. However, in terms of an Astromech droid, anything goes: Aluminium, Wood, Styrene, as well as 3D Printing, to only cite the most common ones. [Click here](#) to view the Astromech Wiki page of various materials.

Materials are depending on many things such as budget, availability, experience etc. The most common materials to build from are Aluminium, Wood and Styrene. In recent years 3D Printing has become a huge part of the club, opening the door to many new builders and many new ways of building a droid. Each material has its pros and cons, Aluminium is one of the most expensive materials to build with. However, it is a very strong material and looks great either unpainted or painted and is common for people going for accurate movie droids and/or [Tier 2 \(UK\)](#).

Wood is a common choice for a lot of builders. Most people choosing wood already have experience working with it. In terms of budget, whilst cheaper than aluminum, it is not as strong. On the flip side, although it is more expensive than styrene, it is also structurally stronger. Wood is quite easy to work with for those who haven't worked with wood before but often requires specific tools so you should take this into account when budgeting..

Styrene is the cheaper way to build your droid. You can build your entire droid out of Dave Everett's styrene plans and it will be very light. You also need minimal tools to cut out styrene and it is quite forgiving in terms of mistakes. Although it is cheaper than materials like aluminium, styrene is still pretty strong providing you have followed the instructions correctly.

3D Printing is a very popular way of making your droid and is constantly getting cheaper and better. There are both club parts on the astromech.net forum and there is also the [Michael Baddeley Printed Droids Group](#) on Facebook which is a great group for 3D Printing. 3D printing, despite what people may think, is a great way to make a droid but does have its drawbacks, similar to any material. You would be mistaken to think that 3D Printing removes the hard work that goes into droid building: there is a lot of filling, sanding, priming, glueing etc.

Other materials I have seen people use are Lego, Cardboard, Fibreglass and I have even seen a paper-maché R2!

Parts & Terminology

Something that you may not realise is quite helpful to know is the name of the parts! Whilst this isn't vital for a builder to be able to build, it certainly does help! You can find the part names here - <https://astromech.net/droidwiki/Terminology> - don't worry if you don't know them all straight away, many builders forget the correct part names.

The amount of parts within a droid can be quite deceiving! Make sure, for each section you work on, to do plenty of research on each of the parts. This will help you understand how to build them, prepare them, paint them and finally what the best way to attach them is! They don't all go inside your droid the same way, so you may need to dig a little deeper to find the way to suit you! Also, although you can build the parts based on the plans, looking up who does the parts runs for the piece you are wanting is also something useful to have at hand! It'll save you lots of searching later!

Electronics

There is a section within the Astromech Wiki that details a lot of Droid Electronics which may be helpful to you. You can view it [here](#).

You are probably already worrying about this and it's understandable: they can be daunting at first if you haven't had past experience with them. It's part of being a droid builder: you learn new things and you never stop learning. There are various electronics that make up R2, from the logic lights all the way down to the drive system. Each provides a great way to learn things but also presents their own set of challenges.

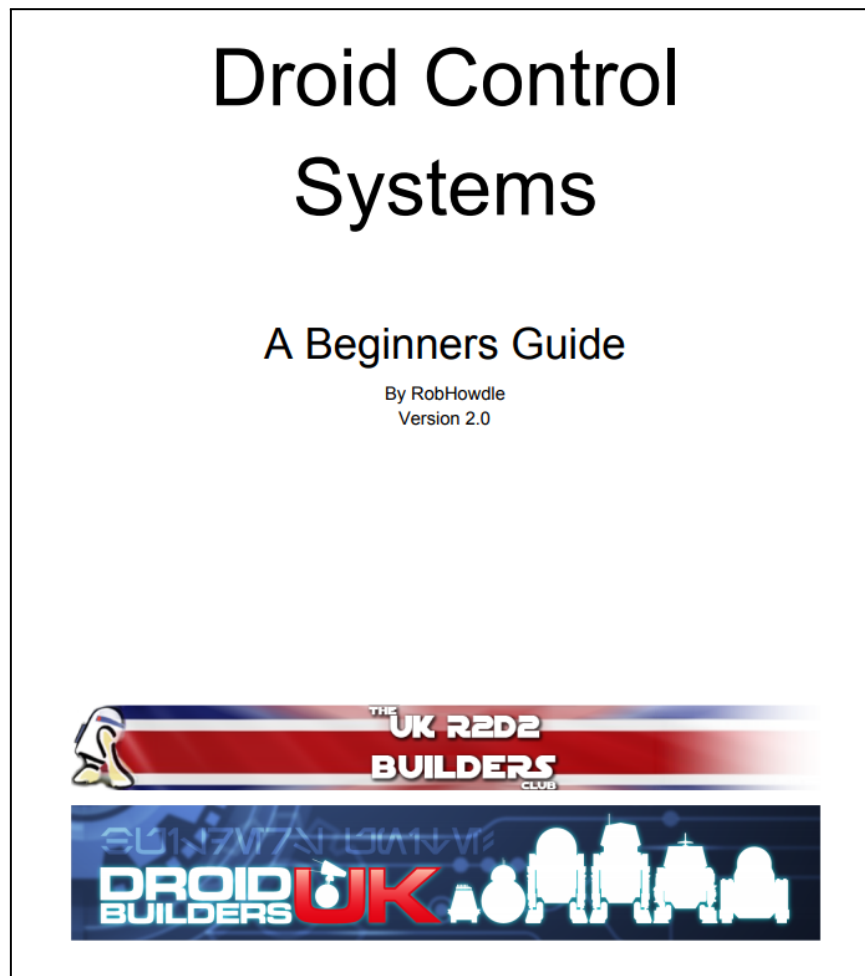
Common questions are usually about parts runs for electronics, where to get them, who to get them from etc. The problem with this can usually be either cost or availability, but don't get me wrong there is always a way. Depending on the type of person you are, you have some options available to you when it comes to electronics.

We will use Logic Lights as an example here. Logic lights are something that is used on almost every single droid you will come across and there are various ways to get hold of them. [JoyMonkey](#) on the Astromech.net forum has supplied a kit called the Teeeces which is one of the most popular Logic Lights for droids. Many people have done alternatives and

there are a few alternatives offered by JoyMonkey himself, so, depending on your budget, these could be a good choice for you.

Other people in the club also offer the Teeces as a kit in various locations. The kits can also come in different stages: fully completed, which means all the parts have been soldered already and you just need to connect them together, or you have the option to solder them yourself, for those of you who may want a bit more of a challenge. Either way is fine.

Control/ Drive Systems are something else that are very important, unless you are doing a completely static droid. As I mentioned at the beginning, I have done a separate guide on control systems which you can [read here](#).



Painting

You can read up on a Wiki entry for Painting and Finishing which may offer good ideas as well as the colours for some droids. [Click here](#) to view it

Painting is something you don't really need to worry about until later. Picking your colours, although important, may be something you reconsider halfway through your build. When it comes to painting your droid, it's a whole section of learning in itself. The painting process isn't a case of slapping on some paint with a brush: there is so much finishing work involved that it needs a whole section dedicated to it so make sure that, when you are doing your research, you take note.

An example for painting is the finishing process. Let's take 3D Printing as an example, 3D Printing has become pretty good in recent years but they still need a bit of finishing work. Usually this involves some filler, most commonly used would either be P38 Car Body Filler or the legendary Motip Filler Primer in the UK, or Bondo in the US. You would use this to fill any gaps, sand the pieces down, spray with primer and you would repeat this until all the imperfections have gone and you're happy with the finish which should be nice, smooth and even.

From there, you have options for painting that would change depending on what material you use. In this case, with our material being 3D printing, the most common painting method is using spray cans, whereas if you were building from something like aluminium, it's quite common to powder coat your parts. During your research, you will learn the best ways to do things like painting, masking off areas, etc, and some of the best lessons that you will learn are more tips and tricks that will help you get a better end result.

A lot of builders provide plenty of tutorials on YouTube and their own personal websites as well as the forum which range from beginners lessons to advanced techniques, in which case it would still be interesting to see if the information in the videos offer anything extra for you: they might give you some more information that could help you.

You should know exactly the colour you want to use as well: if you say you want the colour blue, which kind? There are hundreds of brands that offer the colour blue and they're all different in their own way. Have you thought about what shade of blue you want? There are 24 shades of blues you can get, which one will give you exactly the look you're going for? Do you want a Matt finish or a Glossy finish? Weathered or unweathered? The only way to truly find out is to grab some paint and try it on a spare piece, do plenty of research. Choosing your choices will save time and money.

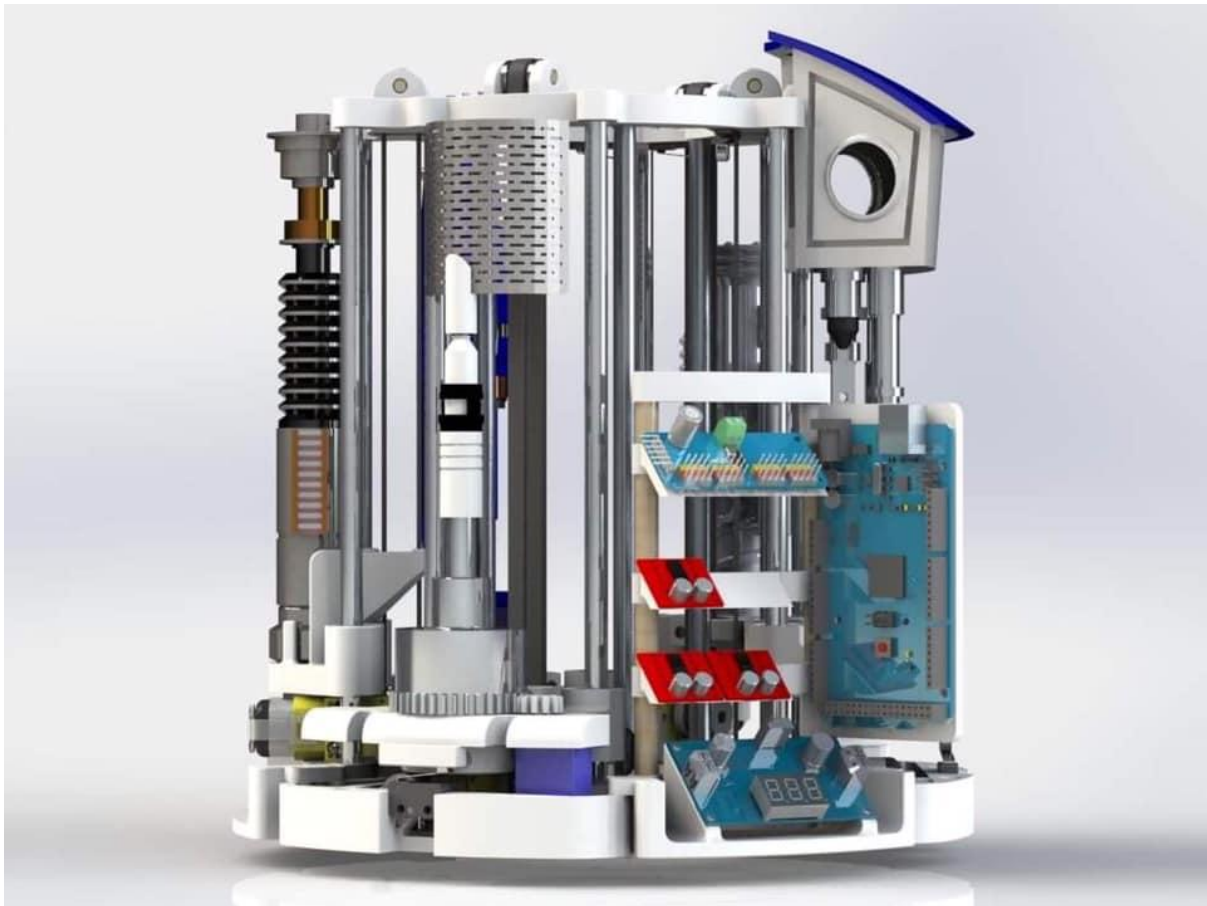
Other Functionality

When I say functionality, I am talking about what do you plan your droid to do. If you want to be able to drive it around, then you need to research things like Drive and Control System. I have written a guide on [Control Systems](#) that you should also read when you get to that point. If you want your droid to have all the bells and whistles that you see in the films, you need to make sure you plan for that too. Many control systems offer things like dome panel

and body panel control but you should find out what you need when you research those specific things.

Since the club formed, things have changed quite a lot in some areas and not a lot in others. Builders are constantly coming up with new things such as the adoption of 3D Printing and Resin Printing. Michael Baddeley is one of the many people who helped builders take their droids in new directions using 3D Printing and has helped to encourage new builders to begin their journey, as well as to come up with their own ideas.

An example would be Matthew Zwarts' Dome Mechanism, which you can see pictured below and is available on Thingiverse - <https://www.thingiverse.com/matteous78/designs> . This model allows you to build a bunch of R2's most famous tools that hide in his dome as seen in the films and can be controlled from your remote system of choice, giving some extra bit of life to your droid.



(Image Courtesy of Matthew Zwarts)

This is not the only stuff you should research, however, and I have no doubt that as soon as you begin to research things like what material you will use, you will come up with a whole bunch of questions you'll find are relative to you and your build and which you'll need to answer.

I cannot stress enough how essential your research will be to you, especially if you aren't sure on certain things yet. I have seen many builders who hadn't done their research prior to building, spend more money and time and get frustrated when things don't go right although it is something that could have been avoided if only they had researched.

That said, mistakes happen! Even the most experienced droid builders make mistakes and so long as you learn from those mistakes you will be fine!

Can I add things later?

A question I see quite a lot being asked within the groups is whether it's possible to add things after their droid is built. This mostly relates to 2-3-2 but also includes many other things such as adding electronics. Looking up all the features you want in your droid should be part of your research. At some point, somebody else will have tried to add them AFTER they have done certain parts of the build. An example of this would be the 2-3-2 feature where your droid can go from standing on 2 legs with the center foot retracted into the body, to 3 legged mode where your droid drives around on all 3 legs. This is a big feature to put in and is almost impossible to do after you have constructed your droid so the first thing you want to do is make sure you are aware of the size of the feature you want to put in and do plenty of research to check whether it is something that can be added later or not. In this case you should do all the work for the 2-3-2 in the beginning because if you leave it until after you have built your droid, you will probably find yourself having to completely strip your droid back to the bare parts to add this particular feature.

This level of research should be done right at the beginning because it will save you a lot of time and money in the long run.

Attending events

You don't need a finished droid or even a work in progress droid to attend events!

You might be doing your research but reading the Droid Wikis and peoples Build Logs might not answer some questions you have. You might be trying to find the answer to a certain question that you just can't find or can't fully explain over the internet, but regardless you might be stuck. This is your first hurdle, don't panic!

Attending an event will provide you with invaluable information. When I was doing my research, there were certain things I just didn't understand. I had plenty of information there, I messaged other builders and had them explain, but I couldn't visualise it in my head. I went to my first event and spoke face to face with the builders, and straight away they began opening up their droids to show me the answer. I could have spent another couple of months trying to research the answer but by seeing it in person, I suddenly understood where I was struggling.

Other examples would be physically seeing the droids. Something you will soon discover when you go to events is that seeing droids in videos and pictures is nothing compared to being in the same room as them. It is a mind blowing experience for sure! I found it amazing how much more you see in person than on a picture: colours are more vibrant, you get a better sense of scale as well. Something I always found useful, and I'm sure no builder would object, is taking your own pictures and videos.

You will often see a couple of builders crowded round a droid either with its head off or the rear panel removed. I always take pictures of the insides of people's droids so I can see how things go together, peoples' ideas, wiring techniques etc, anything I think would be useful to me and my build I snap a picture of, and the best thing about physically being there is you can get the angles that you need. You might have found some pictures you've seen don't quite show the right things and this would be the perfect time for you to take the pictures you need to help you.

Many things go on at events, especially the UK ones where we have our Droid Driving Course, 39.1% races, workshops and many more. The best parts about events and builder meets is simply being able to talk to other builders. Talk about how your build is going, what you want to do, any concerns you have, show off anything you have already or just have a general conversation.

Depending on the event, there might be a lot more there than just Droid Builders. In the UK, we have MCM which is basically the British version of Comic Con so you have a whole bunch of different things there, all forms of pretty much everything in one place, interact with different people, different groups, make friends, share ideas etc. You will never experience anything quite like it in your life, I promise!

As you know, we also do a lot of charity events so it will be very common for you to see collection buckets, big signs, possibly even reps from the charities themselves hanging around. We are very proud of the charity work we do and the money we raise for the various charities and you get such a huge sense of achievement knowing that you have helped.

Finally, maybe the best part about attending events is the motivation. I don't think I have met a builder yet that has left an event or builders meet not motivated. Something happens at these events where once it's over you have a huge burst of inspiration to go and work on your droid as much as possible. Again, even builders who have been with us for many years will share on the forums and in the groups how motivated they are after an event and you will see a large increase in peoples' progress before and after these events.

Don't be put off or intimidated by fully finished droids, or worry that you can't build anything to that level, use it as inspiration instead to make your droid the best you can.

Sounds great right? Something you'd be interested in? Glad to hear it! You'll want to head over to astromech.info and make sure you are registered on that forum or whichever forum relates to the country you reside in, as mentioned above a place where you can buy some parts either for your droid, for another droid or even get your hands on things like club patches, pins, coins and other collectibles that builders might have to trade.

Online Events

Events getting cancelled / postponed is nothing new, it can happen for a variety of reasons. However, the COVID-19 pandemic of 2020 caused all events to be stopped without a clear indication of when they were going to be allowed to resume. As a club who regularly attends events such as Celebration as well as plenty of our own smaller meetups, and of course our main event, Droid Builders UK (formerly R2UK), this has caused us to start thinking about how we can work with the situation.

Michael Baddeley took the first step into having a form of online virtual gathering within his Printed Droids group which soon spread throughout the other groups after proving how successful it was, allowing people from different clubs to sign up and host various zoom sessions for their clubs or builders in general to do workshops, tutorials or just general gatherings. The ability to then include not just local builders but all builders worldwide at the same time is simply fantastic. Builders who would normally never be able to attend certain events can now join in and make new Droid Building friends.

Even when builders return to these events, especially for the local ones, we believe that platforms like Zoom will now play a huge part in terms of allowing more people to be a part of the events when they can't physically be there so it would be worth keeping an eye on all of the groups and forums, because, when events are announced, you may be able to login via the internet if you can't get there in person.

Planning and Structuring Your Build

At this point, you should have done plenty of research about your build, around which path you're going down, which materials you're using etc. People also learn at different rates and people come into this hobby at different levels so spend as much time as you need during the planning stage.

This is where you start putting all research into a structure you can work from. One of the common questions I see when people are ready to begin physically building is people asking which part to start with. There are a lot of parts of a droid right? It can be tricky to know where exactly to start. Most builders tend to start with the dome before anything else. They have various reasons for starting with the dome but the most common reason is because even if you don't go ahead and completely finish the build you still have a pretty good dome there, which is pretty iconic in itself

It'd be a pretty short guide if it stopped after the dome so we shall press on. You might be wondering how you should plan your build and the answer is simple, however works for you! People find their own ways to plan things and there isn't a set structure which is what makes this hobby so great. There are no time limits, there are no contracts either and you are bound only by your own determination.

You can plan anyway you choose! I found it easier to draw things out on paper and write things down, but some people might print off pictures of their droid and label it, whilst some more advanced builders have done custom 3D Models, taking full advantage of all the technology available to them. This is where you really make sure you know every inch of your droid, take your time to focus on all of the parts of your build and make sure they are what you want.

If you haven't already guessed, this is not a one week build: whilst some people can complete their build pretty quick, time is your friend here, not your enemy. Impatience however is certainly something to be avoided! I know from experience that patience is also a key part to this build and once you master it, you will avoid so much unnecessary work and costs. Whilst there is no time limit on this build, it could be good to set yourself some deadlines to keep you from spending an overly long amount on one part.

Your current skills

You're probably going to worry about whether you can do half of the things that you need to in order to build your droid. During the planning phase, this is where it would be best to sit down and think about what your skills currently are and what they allow you to do. Remember not to sell yourself short: you may be an amateur, intermediate, expert in one skill but not another and this is where the club comes in because its members are wonderful and whilst you may not be able to do something, somebody else will and would be glad to help you out. This is where parts runs are born!

Also when doing both research and planning you probably took into account what you may prefer to work with when building: a carpenter may choose to build out of wood rather than metal for example, based on their experience. Whilst this build is about learning it wouldn't make much sense to go down a route that you might have no previous experience in, if there is one you're already experienced in.

Designs

This would be where you now plan what you want your droid to look like. Typically, the majority of people go for a typical R2 when they enter the droid building community but we do encourage people to come up with new ideas. Come up with a colour scheme you haven't seen before, think up ideas you would love to see on the real R2 or any droid you are building whether it's a type of astromech, a mouse droid, BB unit or any other droid you are building. Below are some images of the more custom droids that have graced the club and that you might have seen.



(Image Courtesy of Sam Prentice - R2-SHP Builder)



(Image Courtesy of Kurt Zimmerman - Art Deco Builder)



(Image Courtesy of Alisdair JD Gilbert - BBD-2 Builder)



(Image Courtesy of Giles Redpath - MSE 6 Builder)

They look pretty good, right?! There is nothing wrong with doing traditional screen droids like the beloved R2-D2, R5-D4, Mouse Droid and the newly loved BB-8 and D-O but don't feel restricted to those droids! Everyone loves a new droid that they haven't seen before so get creative! More images like these can be found in all of the various groups and forums.

Beginning your Build

Great! By reaching this point you'll be ready to start your build. No builder knows everything there is to know about droids so nobody here will expect you to be quoting the forums and the droid wiki from memory but, as you progress, more things will come up that will make you think and occasionally rethink what you have already researched. It's not necessarily a bad thing but you want to avoid redoing everything otherwise you will end up going round and round in circles.

What should you be thinking about before you go spending your hard earned money on parts, supplies and paints? Keep referring to your plan to start with, your plan will tell you what you decided to start with and if you were buying parts, making them yourself by hand, 3D printing them etc.

3D printing takes you via multiple routes, MrBaddeley's Printed Droids group on Facebook is one of the most popular ways to get started, especially if you've decided to use 3D printing, but also Astromech.net has their own files. Although Michael's files are highly used throughout the community and are made to a CS:R specification, they are not Builders Council approved parts.

Making parts from scratch will involve finding the plans from the Astromech.net forum, printing them out and working from the plans which some people can do easier than others. Whilst this can be a lot more difficult for some and a lot more time consuming, you probably won't get a greater feeling of satisfaction than finishing a piece you're happy with.

Perhaps you are going down the buying parts route. I'll cover certain parts of that later because there are quite a few things to keep in mind when buying parts!

Materials

A word of advice that you might thank me for later, regardless of what material you are building from: you will end up with a lot of scrap parts. Off cuts of wood, failed prints, bad parts etc. I would advise you to keep as much as you can safe until later, I will explain during the painting section.

3D Printing

You will all have heard of this magical thing that is 3D Printing by now, if you haven't then you should do separate research before attempting anything down the 3D Printing route. 3D Printing has been a game changer when it comes to Droid Building since it was made more affordable for people to have printers in their homes.

Before we begin, a question I see a number of times within the 3D Printing groups is when members ask about getting files printed for them. If you do not have a 3D Printer or if you

have no intention of getting a 3D Printer then you shouldn't really be looking at 3D Printing. One question a number of builders ask is whether they can send files to a company to print. Currently I have not found any builder who has done this simply due to cost. The money you spend paying a company or another builder to 3D Print your droid for you, you could most likely have purchased a number of printers and enough filament to make one yourself and that is just for the 3D Print. One builder made it known to me that they got a quote for a company to print a full size Chopper dome. That particular quote was \$2,000 (£1425.00) for plastic and \$10,000 (£7129) for SLA. Whilst not all companies charge the same, that is still a lot of money for a single part. It would be much better for you, and cheaper to do it yourself.

Since the introduction of 3D Printing into the community, membership has soared and many new droids have been born in half the time they usually would. 3D Modelling these droids is a skill few people started with but many have now mastered and people are constantly putting their ideas and files online within these communities for people to print, improve on or use as inspiration for a different idea all together! This has resulted in a whole generation of droids being built and with the ease of changing parts, printing new parts and redesigning things. Upgrading your droid has never been easier.

3D Printing has allowed many people to take the plunge into the Droid Building who normally might not have had much confidence in using other materials. That doesn't mean 3D Printing is without its flaws and there is a bunch of information about 3D printing in Ben's Guide and within the 3D Printing community.

When you start 3D Printing your droid, you should firstly consider which files you will be printing. As I mentioned earlier there are a couple of routes you can take and I'll cover them here.



(Image Courtesy of C2-B5 Builder - Craig Pay)

Club Approved Parts

On Astromech.net there is an Official 3D Parts section. These parts are BC approved parts however there isn't a full droid worth of official 3D Parts. There are various parts you can print and the files are labeled with CS:L or CS:R, the ones that don't are universal.

You can view the Club Approved 3D Parts in the Astromech Wiki - [Click Here](#)

MrBaddeley Printed Droid

Michael created his Facebook group to share his files that he created and, since the launch of this group, the Droid Building Community has boomed. Michael's files are widely used and loved within the community as a whole. Whilst they are not BC Approved parts, they are made to the CS:R Specification.

Michael's files are suitable for almost everyone within the community and the 3D Printing Community is very helpful so if you find you're struggling, join up and ask for help. The parts are designed to go together easily, securely and to minimize the amount of filament needed.

The Droid Builder Web Team created a new platform for members of Michael's group to assist them in keeping track with their builds. The Printed Parts Checklist is a personalised checklist for any builder who is printing Michael's files and allows them to keep track in real time of their printing progress. Whilst this checklist is entirely tailored to Michael's files, other builders can use it if they choose. You can register on the checklist by [clicking here](#).

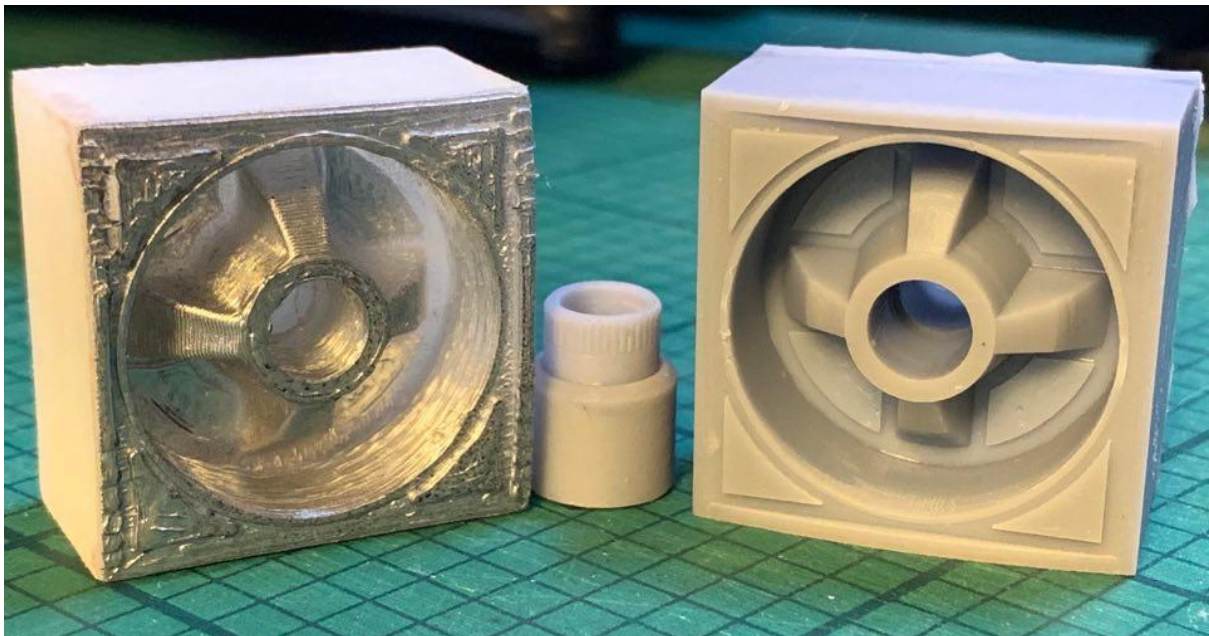
Other Forms of Printing

Resin Printing

Resin Printing is something that is slowly taking off within the various communities. Whilst not good enough (yet) to do main prints on for the droids, they are currently clearing the table of standard FDM 3D Printers when it comes to very fine detail. Sam Prentice did a debate on Resin and 3D Printing with Michael Baddeley on his YouTube channel, which you can watch [here](#) if you're interested.

Whilst none of the parts we currently have are specifically designed for resin printing, it is certainly becoming a favourite within the club based on its ability to produce such brilliant looking parts with no layer lines, virtually no sanding required and the overall quality fantastic. The downside is that currently there aren't any affordable printers that can do any large parts so builders are currently using them to print smaller parts such as Holo Projects and various other small parts.

Below is an image showing you the difference between Resin Printing and standard FDM 3D Printing.



(Image courtesy of Sam Prentice)

Other Files

One of the best things about this community is that there are so many people who put into the community. Many people have shared their files for various droids they are designing and either giving away or selling. Something to note, you should always check the files you are printing with other builders or even the person who created the file to make sure you can use it with what you currently have! Many people modify other peoples files or create custom things based off another person's files but you should always double check it will work with your build.

Of course there are a whole bunch of droid parts for droids such as R2-D2 and other astromechs but do you want to build R2? Maybe...maybe not. We're not in 1999 anymore! There are tons of droids you can print from:

- Astromechs
- Utility
- Protocol
- Battle Droids
- Super Battle Droids
- Assassin droids
- Many more!

Search around the groups and see what you like!

Styrene Builds

Not everyone has nor wants a 3D Printer, I know from experience they can be a huge pain when they want to be, and some printers simply aren't budget builder friendly. Styrene on the other hand is rather cheap. Whilst that depends on what you class as cheap - one might say, "*from a certain point of view...*"- Styrene is a sheet of plastic that we use to build certain droids. Dave Everett created plans for a full Styrene R2 which you can print out and cut. There are plenty of tutorials on the forum and on YouTube, you can also find the files in the BluePrints section of astromech.net.

Many builders have built styrene based droids and, if done correctly they are very strong. Obviously, there are stronger materials than styrene you can use but it entirely depends on what you want from your build.

Here are some images of a couple of droids that were built using Styrene.



(Image Courtesy of U9-C4 & R2-H16 Builder - Nik Harber)



(Work In Progress Image Courtesy of R2-D2 Builder - Jamie Cox)

Wood Builds

Wood! It's everywhere! You see it in many places, almost every day and some of you may even work with it from time to time. Wood is the next step up in standard materials for Droid Builders, it's stronger than Styrene, availability is often a lot greater since you can pick up the wood from the majority of places however some of the downsides is that it is a bit more expensive than styrene however not as expensive as aluminium! Many builders have wood somewhere in their droid whether that be the frame, the legs, parts and sometimes even the dome! A lot of people enjoy working with wood, as well as it being very strong it is also quite forgiving when it comes to mistakes which is always a great thing to know.

There are quite a few major parts that you can buy or make yourself out of wood including the Senna Wood Frame as well as Legs which are usually made from Baltic Birch Plywood. You don't need a huge workshop filled with expensive tools, all you need is the basics, a bit of patience and to take your time.

If you are interested in building your droid using wood, I would highly recommend checking out James Feurtado's Build Log. He has done some fantastic work on his droid and has documented it really well. You can view it [here](#). You can also check Victor Franco's [here](#).

You will not find many small parts made from wood unless the builder of those parts has a lot of tools and is pretty good at working with the material.



(Image Courtesy of R2-D2 Builder - Mike Senna)



(Image Courtesy of R5-D4 Builder - James Feurtado)

Aluminium Builds

Finally we come to the metal builds. No, I don't mean Metallica, Aluminium is another material builders can build their droid from. Whilst kicking your budget to the otherside of the field, aluminium certainly isn't a cheap option however is it a popular road to go down.

Many builders opt for the aluminium builds based on a few facts, strength being one of them. the aluminium droids are some of the strongest built. Finish is another factor, being able to have the "look" of a metal finish is one thing but to actually have it because your droid is made from metal is something else. Personal preference is the main reason that someone will choose to go down the aluminium route.

You can pretty much get every part of an Astromech droid made in aluminium or other metals and is probably one of the few materials where there is a wide range of parts available.



(Image Courtesy of R2-DJP Builder - Darren Poulson)

Fibreglass

There is some information within the Astromech Wiki you can read regarding working with Fibreglass - [Read it here](#)

Fibreglass is another material you will see around. Whilst these are more popular on the Black Market of Coursant's Underworld (eBay) there are some parts that people have used in their builds. After all, Fibreglass droids were used in the new Prequel Movies. Unless you have worked with this material before, like all materials, you might struggle. Fibreglass is usually used to cast molds of parts. The perks of using fibreglass is that, compared to some other materials, it can be a lot cheaper and you can make multiple casts of each part should one get damaged or for building more than one.

As I mentioned above regarding parts bought from eBay, please take great care when purchasing from eBay since the parts are not approved by the BC and there is no guarantee with the parts from the club or that they will fit club approved parts.

Resin

[Here](#) is a link to an Astromech Wiki discussing using Resin in your build.

We partially covered Resin in the 3D printing section. However, this isn't the same way to make resin parts. This method is similar to fibreglass, in the sense that you'd have molds of a part and you use liquid resin to fill these molds in order to produce parts. A regular run of Resin Parts would be DJ Designs who produces some fantastic resin parts regularly and is a very popular source within the club. You can find his page [here](#)

Overview of Materials

Ultimately, the choice for which material to build from is completely down to you, as is pretty much everything about this build. Like we have discussed, when picking your material(s), you should take into account any existing experience you might have in making things, your current tool setup, etc. Having the right tools for the right job is essential: for example, you should not use a Mitre Saw to cut a sheet of 2mm styrene. There are many other things to think about, these are just to name a few.

Plenty of new builders have decided they're going with one material but then changed to another and that's okay! Other builders have purposely gone with a single material because they have used it before, that's okay too, so are builders who have come in and looked for a challenge and have started building in a material they've never used before. These are all perfectly fine choices and will all teach you things you probably didn't know before.

There are also many hybrid droids around that are made up of many different materials such as wooden frames, aluminium skins, 3D printed domes, resin parts etc. Many builders might start off with parts made from resin or 3D Printed and upgrade later to something like aluminium parts or they could stick with the parts they have.

Electronics

You've chosen your materials, you know how you're going to build your droid, Fantastic! You can start building if you want to: at this point, you should have plenty of information that will allow you to make a good start on your build. Some of you may want a static, no electronics droid, which is absolutely fine and there are some great looking static droids out there, both with and without electronics.

The electronics are a great way to add more life to your droid but this is also the area of building that many builders fear. For most, electronics is a new territory. People may have occasionally made something out of wood, glued a couple of parts together or even done the occasional DIY, but unless you have a genuine interest in electronics, you might find that this is something new to you. Again, this is perfectly fine. We will go through the different options you have available to you and what some of the best practices are when coming into electronics for droids for the first time.

What should you research?

It would be very wise to get a basic understanding of electronics before undertaking the task of researching this section. Being able to fit some circuits that somebody else has made into your droid is perfectly fine but only half the reward. Understanding how that circuit works, how it does what it does, how to fix it or expand on it, now that is the icing on the cake!

Nobody will expect you to become an expert in electronics for this build. Some of you may only want an extremely basic set of electronics such as a few flickering lights and possibly some sounds. The same advice applies to you: get a basic understanding of electronics and it will help you understand your droids electronics. In my [Control System Guide](#), I discuss some basics that you should look into, these include:

- Common components - LEDs, resistors, capacitors, IC Chips, Switches, Wires and Wire Gauges
- Simple circuits such as flashing LEDs

These basic electronics might seem complicated if you've not had any experience with them before but, once you commit to learning and you break the circuits down, it does become easier to understand.

If you already have a basic understanding or are interested in electronics already, then chances are you will understand these different types of circuits and their functions quite quickly and that is great!

What electronics does your droid have?

Before you start soldering, you need to know what you want your droid to have electronics wise. Most droids usually have a typical set of basic electronic functions such as movement, lights and sounds. R2, for example, has all three: his drive system that moves him around,

his sounds that give him the iconic beeps and boops and his lights: logics lights, holo projectors etc. Not all of those are required: you could just have lights and sounds if you want, it is your choice.

You should research what electronics you want your droid to have, more specifically the ones you want to replicate. You should take a bit of time on this topic as there might be some features you didn't know your droid could get. Some builders also go down the custom route and make some outstanding options for droids that you could also want to build such as James Feurtado's R5-D4 Trading Card Dispenser - <https://www.youtube.com/watch?v=C2BgT3Wwo1o>

Prepping, Painting and Finishing

You're almost there! Some of you may shine in this area. People who already have experience in painting and prepping parts and models will probably already know everything in this section but it's always worth reading, just in case. So you've got all these parts, the majority of your droid is assembled, now what? It's time to prep them for painting.

Would a mouse droid be the same without its paint? The painting stages can make or break your droid and it's very important to make sure you are happy with what you're doing before you paint the real thing. Prepping your parts is just as important as actually painting them, because if you part is poorly prepared, it will show when you paint and if you're not happy with the results, you will have to sand your part back down and start again.

In your research, you should have looked into how to properly prepare your chosen material for painting and the best practices for that. Various techniques will also give you different results such as wet and dry sanding. Sanding with different grit sandpaper will give you different finishes, smoother edges over standing with a single grit. Remember, there are some things primer and paint will hide but you should always assume that the paint will show it rather than hide it but you can always share a couple of pictures to get the advice of other builders.

Different materials require different methods sometimes, sanding wood for example you would mostly want to focus on making sure the wood isn't warped, there are no rough edges and that it is properly sealed to avoid moisture getting into it whereas 3D Printed parts tend to have a lot of layer lines that some people fail to remove prior to painting leading to obvious layer lines in the final product.

Do you know what colour your droid is going to be? There is a bit more to it than blue white and silver. Painting quite often trips up a lot of builders who aren't familiar with it on the very simple fact that it's not as easy as some people may think. It would be foolish to rush your painting process because painting can quite simply ruin the overall look of your droid if it's done poorly.

So what should you do at this point? Well, through doing your research, you should have decided on the colours you want and they may have changed through the course of your

build and that's perfectly fine, as long as you know what you want to use then you will be fine. Some of the best practices for getting great paint finishes are done through trial and error.

Remember at the beginning, when I mentioned you should keep hold of your scrap parts and offcuts? The reason I recommend this is that you will want to run quite a few tests for your paint job: different paints, different brands, different conditions and different materials all give very different results and you should never go straight in directly painting your droid unless you are sure you're happy with what you're doing, after all you've spent all this time prepping your parts, do you really want to risk ruining them?

Get those scrap parts and run some tests on them. I'm not talking about taking their blood pressure here, I mean throw some primer on there and paint them up. Not only will this get you used to painting if you've not done it before, but you can see what it's going to look like when your real parts are printed, primed and painted. You don't want to spend too much time making these parts look nice because they're just scrap parts but you should learn what techniques suit you best, the best way to layer your paint, how long to leave in between coats etc. Even trying different paints to get the best colour is best done on your scrap parts.

One of the hardest choices some builders face is whether to weather their droids or not! Once you're happy and feeling confident, let's break out your actual parts and make a start!

Costs of your build

Building a droid is not a cheap thing to do: people will ask you “How much did it cost you to build that thing?” and when you tell them the price, you will see a pattern in people's reactions. Some droids are cheaper to build than others for different reasons, one being the size of the droid: a larger sized droid will require more materials, more parts meaning more money.

There certainly are some great deals and bargains out there and you can pick up some even better parts from other members, but the main thing to remember is that the beauty of this journey you are taking is that you don't need to rush, take your time! If you find that your droid is draining the bank account, then take a break, or see if you can find cheaper ways to do things.

Every builder is different. Some builders end up redoing the same parts multiple times because they're not happy with it, some builders are perfectly fine after their first attempt. Whilst it's important for you to be happy with the way your droid looks, redoing the same things multiple times will cost money.

The amount you spend on your build, like everything else related to this build, is completely down to you. Some builders spent as little as £500 on their droid whilst others may spend many thousands of pounds.

Replenishables are something people often leave out when they're discussing the cost of their build. By this, I mean the small things that you need to keep buying for your build. I've made a small list of various things that are important to keep stock of but these certainly aren't the only things:

- 3D Filament - Did you take into account the supports, helper discs, brim/raft/skirts and any failed prints?
- Solder - Always handy to have for electronics, in fact you can never have too much solder.
- Paint - A can only holds so much and you might have done a lot of testing (not a bad thing!)
- Sandpaper - You'll be amazed at how much of this stuff you will use
- Motip Filler Primer/ General Filler - This one is mostly for the UK and Europe builders but it's easy to get carried away with this stuff and before you know it you need to order more.
- Glue - always great to have and you'll be surprised how many things you will use this on
- Screws/ Nuts & Bolts - You will find you will ALWAYS need that ONE screw you DON'T have.
- Wire - Various sizes for different things such as wiring up motors, to connecting up arduino boards.

Hopefully you get the idea. I'm not saying go buy an entire shop's worth but, as you progress in this journey, you will learn what you tend to use more of but you should be prepared to

replace certain items more regularly than others there is nothing worse than being ready to work on your droid to find you're missing vital things that you need.

Pride and Criticism

I thought it would be wise to include a little section on this, especially since the majority of discussions about droid building tend to happen online these days. As a club, we are lucky to have you as a new builder: we love new builders that come in and are keen to start building! You will have seen many different droids on your travels around the different groups and the different events you attend and they all have one thing in common. You will find each builder takes a great amount of pride in their droids. Some droids are just starting out and may only be a few pieces whereas other droids have been doing the rounds of comic cons and childrens hospitals for many years.

Sometimes, it can be quite overwhelming for a new builder to see these great droids and, occasionally, you will doubt your own abilities to create anything as good as these droids. The best advice given to me when I first joined and felt that same way was to "*use those feelings as inspiration, not discouragement...*". You should take pride in the droid you make, even if it only consists of one or two parts so far, make those one or two parts the greatest parts you've made.

Taking pride in your droid is done in many different ways, from keeping them clean (barring weathering!) and well maintained all the way to making sure that the 3D printed parts you're printing are good quality. Whilst the club doesn't require you to have a certain standard, these suggestions are for your own sake, to try to save you more time and money in remaking / reprinting parts, sanding down and repainting parts etc.

On the opposite side of things we have criticism. You will be your own worst critic when it comes to your droid because you know every part, every imperfection and every piece you're unhappy with but just remember: the movie droids weren't perfect. One of the downsides to having an active online community is that, often, things can come across the wrong way, and it's important for you as a new builder to understand that other builders will often suggest things to help you improve your droid, refine your skills and offer different techniques and you should take care to make sure you don't take these suggestions a negative way.

Time

Whilst we briefly touched on this at the beginning of the guide, I feel it's important to mention it again because by this point I can imagine that you're pretty excited to build your first droid. Take your time, new builders often make the mistake of listening to this warning **AFTER** they have rushed some parts and have to redo them. You are going to be very excited when you get your first parts and start putting them together and when things start taking shape. You will become even more excited when you start going to events, as the majority of all the Jedi tell us.. "*Patience...*" it's not a race and you will be thankful in the long run that you have taken your time.

It's easy for a builder to get discouraged when they spend so long on a part and then realise how much more work they have to do. The feeling that you will never get it finished can often be enough to make some builders take a break for a while. Remember that there is no timescale on this journey, do it at your own pace. There are no rules, nobody is keeping track of how long you are spending researching or whether you have spent too long painting your parts. People learn and build at different paces.

If you want to speed up your build, you should try asking in your local area if any other builders want to get together for a build day. Many people do this and they're great fun as well as being quite productive. Arrange to meet up with some builders and you all work on your droids together: you help them and they help you and sometimes you can make a lot of progress by doing things like this.

Keep in mind, some builders have spent many years building their droids. For some people, it's an escape and they do it as much as they can ; others live very busy lives and don't have a lot of time to spend building. Regardless of the time spent, it's all about the journey, the things you learn and the people you meet. This is what you will remember most.

Finishing your droid

You've had quite a journey by this point. I'm hoping that you have enjoyed your build, that you've met a lot of new people and attended plenty of events. Some of you might even have started other droids by now. This is not surprising, many people do!

As you near the end of this build, you will have learnt a lot of things, not just how to build a droid but you'll have learnt different crafts that you might not have known before. You might have already known how to do most of this stuff and, instead of learning a new craft, you might have furthered your knowledge or learnt new and better ways of doing things. You might even have offered your own suggestions that have helped other people during their build, and you may decide to continue mentoring new builders.

Either way, you've come a long way since you started this journey and there will most likely have been some bumps in the road, some times where you've questioned if you should

continue and plenty of blood sacrifices to the droid building gods but you made it here. What's next? Do you just put the final greeble on your droid and that's it? Absolutely not!

You might be the sort of person who sees their droid as never 100% complete because there is always something else you can add or something you can make better - that's a great attitude to have and it will keep you learning more and more.

You might be the sort of person who says "My droid is done, I'm happy, I don't want to do anymore work on him/her" - that's a great attitude too! Hopefully when you were beginning your build you thought of what you wanted to do with your droid, are you keeping it in your house as your own display piece? Do you want to bring your droid out to events? If you want to take your droid to events, that is wonderful: in all the communities you are part of, they will regularly post events you can sign up to, you can also create your own events if you want to, just run it by your group first! Over in the UK, we have the MOT Process to confirm the droids are safe to operate at events. We also have a Tier 2 level that you can look into if you want to. Tier 2 level is the one to confirm your droid is movie accurate and allows you to take it to official events (such as movie premieres)

Remember that, over time, your droid will need maintenance. It will get scuffs, scratches on the paint work (also known as natural weathering), wiring will come loose, hinges and brackets may break and circuits could die on you. You should keep your droid well maintained and you can even upgrade parts of your droid if you choose to. The most common upgrade people tend to do is around the drive system for motors with more power or changing the control system for something better suited to the builder's needs.

MOT Process

The UK is very proud of the MOT process we have in place. If you don't know about it, the UK has a system in place where your car is deemed safe and roadworthy based on some tests. The UK builders adopted this and applied it to Astromechs and, since then, other UK clubs such as the BB8 Builders and the T3 Builders have got plans to adopt this process for their droids as well as discussions for adoption of the process overseas. Passing the MOT Process gives you peace of mind knowing that your droid is safe along with other benefits that you can read about below..

Tier 2

This builds on the MOT process and takes it to the next level. You can imagine a standard droid build as Tier 1 if you want. Whilst the MOT process doesn't care much for what your droid looks like, the Tier 2 process does have stricter requirements for both the look of the droid and the functionality of the droid. This is because Tier 2 droids are part of an exclusive club in which you could then be selected for official Disney / Lucasfilm work. These can range from public appearances, TV/ Filmwork and even red carpet events. We already have quite a few builders get their droids to a Tier 2 standard and be offered work from the likes of Disney and Lucasfilm and we hope to see many more Tier 2 droids in the near future.

You can read a great write up on MOT's and Tier 2 [here](#).

Other Parts of the Community

The Droid Building Community is not all building droids, making blue smoke and attending events. From this community, many different things are born. If it helps, think of the Droid Building Community as one very large country. Within that community, we have many different small groups such as the R2 Builders, Imperial Probe Droid Builders, BB8 Builders, Captain Rex (RX-24) Pilot Droid Builders to name but a few, you can imagine these are small towns and cities of this huge country.

Within that, other communities get set up that may not be specifically related to Droid Building itself but still are a large part of the community. One particular group which was set up during 2020 is the Health Support for Droid Builders. This is a group set up by Robert Howdle which, coincidentally, was formed at the same time the world went into lockdown. The group is aimed exclusively for people within the Droid Building Community. The reason I do not say Droid Builders is because we have many people who are part of the groups and forums and either haven't started their build yet or don't plan to build but instead love to watch the progress, still attend events, etc. as well as those people who may not be able to build for various reasons. The group, however, is closed to general members of the public.

The reason for this is that, after careful research, it was found that there is a sense of unity between most builders, a sense of close friendship and family between builders which is rare to find. Through this unique bond between builders, it was discovered that most builders would feel more comfortable discussing any problems they have with another builder. The group was set up for the sole purpose of sharing your problems with other builders, whether they are mental, emotional, financial, physical or any other kind of problem you may have and want to discuss. As Droid Builders, we do a lot of work with charities, a lot of which address the same issues so this was rather fitting with the community.

Members of the group offer advice, comfort and suggestions to anyone struggling and the main comfort is simply knowing that somebody is there, that you are in a safe environment and you can trust the people in the group.

You can join the group on Facebook by following the link here - [Health Support for Droid Builders](#)

Final Thoughts

It's quite a journey isn't it? A lot of people don't realise the amount of work that goes into making the droids, it is truly a labour of love. You get out what you put in and I hope that this guide gives an honest, informative look into becoming a droid builder and has given you a bit of insight into what to expect. Droid Builders span generations, with people who started building when they were young and are now building with their own kids. You may have noticed that I used the word 'journey' a lot in this guide, that's because by the time you finish your droid you are not the same person you were when you started. It is my hope that you will have learnt many new things that can help you both in future builds but also in life as well. It's my hope that you have met new life long friends that you wouldn't have met otherwise and it is also my hope that you will remain within this wonderful community for as long as you possibly can.

I encourage you to stand out, experiment with new things, dare to build something nobody else has built, create a different way to somebody else and bring something new to the community anyway you can. Perhaps the next Star Wars film will have your droid in it somewhere. Don't think you'll ever be able to get your droid to that level? The people in the pictures below probably thought that once too...



Lee Towersy



Paul Felski



Sam Prentice



Oliver Steeples



Michael McMaster



James Feurtado

Credits

As with all the guides I create, many people were involved with helping create this one. Even the smallest assistance can have the biggest impact such as offering an opinion and I am very grateful to those who were able to help.

- Oliver Steeples - Constant proofreading and fact checking, Oliver is a long standing member within the Droid Building Community and his input and experience is greatly appreciated.
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- Members of the Droid Builder Discord Server and the UK R2 Builder/ Droid Builder UK groups for offering their advice and suggestions on various posts.

Everyone listed has given their time to helping make this guide what it is in the hopes that it will help all new builders find where to begin.

Other Guides

I have written a number of guides designed to help new builders find their way in this community, figure out where to start and to attempt to take as much information from this community as possible and give the reader a more organised and simplified overview. I have detailed the various other guides I have written below, they can all be found on my website.

<https://www.robsrobots.co.uk/guides.php>

New Builder Guide
Control System Guide
The World Of Electronics

Updates

I created this page to track updates and changes to the guide.

V2.0 - Included Discord Server & YouTube section
V1.6 - Included Commissions / Company Purchasing Section
V1.5 - Included Other Guides
V1.4 - Included section for Health Support for Droid Builders Group
V1.3 - Included link and info about NK Guy Website & OpenR2
V1.2 - Included more links in the various sections to link back to the Astromech Wiki
V1.1 - Corrected Link URL for Control System Guide
V1.0 - Original Guide