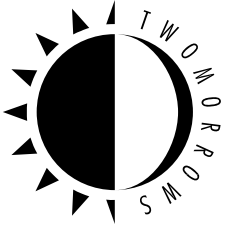


The Magazine for LEGO® Enthusiasts of All Ages!



\$8.95
in the US

Brick Journal

Issue 28 • April 2014

people • building • community

**A BRICKJOURNAL
SPECIAL FEATURE**

Behind the Bricks of

**Syd Mead's
LEGO Spinner**

**The
Brotherhood
Workshop**

**MINDSTORMS
Building**

**Instructions
AND MORE!**

LEGO, the LEGO logo and the Minifigure are trademarks and/or copyrights of the LEGO Group. © 2014 The LEGO Group. All Rights Reserved.

THE LEGO MOVIE © The LEGO Group & Warner Bros Entertainment Inc.



Brick Journal

Issue 28 • April 2014
people • building • community



Contents

From the Editor.....2

People

Sneak Peek3

Cities, Stadiums, and Castles.....4

The Brotherhood Workshop8

Spotting the Spinner12

Building a Spinner16

Building

Taj: Making a Movie Taj Mahal20

Building *The LEGO Movie's*

Coliseum.....24

The Real LEGO Master Builders28

Some of *The LEGO Movie's* Extras38

Recreating *The LEGO Movie's*

Bricksburg42

BrickNerd's DIY Fan Art:

Film Camera.....46

Minifigure Customization 101:

Reimagining *The LEGO Movie*

Collectible Minifigures49

You Can Build It:

Micro Pirate Ship.....52

Building Robots

with MINDSTORMS EV3.....60

Community

It's a Car! And.....68

Set Review:#42009

Mobile Crane Mark II.....71

From the LEGO Idea House:

Building a Name.....76

Community Ads.....78

Last Word.....79

AFOLs.....80



Cities, Stadiums, and Castles

Article by Joe Meno
Photos by Adam Reed Tucker

Adam Reed Tucker is a busy man. As a LEGO Certified Professional, he is doing building projects constantly, and as a builder, he has been involved with the design and launch of the Rollercoaster Factory with Coaster Dynamix. He stepped back from Brickworld, the convention he started, to focus on building. In that time, he has done a number of projects.

Emerald City

Adam built the Emerald City as a part of a collaborative build for Brickworld 2013 themed around the *Wizard of Oz*. Organized by VirtuaLUG, a group of builders in the US and Canada, the build featured scenes from the movie built with LEGO, and was displayed at the Renaissance Convention Center in Schaumburg, IL.

To construct the Emerald City, Adam designed using a minimal approach. Using green bricks and gold accents to create art deco-styled towers and connecting bridges, he created a model that evoked the forms of the Emerald City. Custom lighting was created to provide depth and detail to the model and give the illusion that the “Emerald City” was in fact a working, living city as portrayed in the *Wizard of Oz*.

The goal was to provide a seamless integration into the group collab while leaving no question that the segment was the Emerald City that all had imagined while watching or reading *The Wizard of Oz*. Adam simply tries to capture the essence in his builds, rather than literal recreations.

This piece was completed in only 6 days and barely reached completion, but if you ask Adam, it’s far from complete and plans on a 2.0 are already underway!

Brotherhood WORKSHOP



*Article by Joe Meno
Photography provided
by the Brotherhood Workshop*

In mid-2012, some brickfilms began appearing on Youtube that were different than many others. Having high production values and a wicked sense of humor, the films by the Brotherhood Workshop quickly went viral and led to a Youtube channel with thirty films and over 50,000 followers. One of the films was also seen briefly in the LEGO Movie. Kevin Ulrich, one of the members of the Brotherhood Workshop, spoke to BrickJournal about their films.



BrickJournal: *Who are the people behind the Brotherhood Workshop?*

Kevin Ulrich: My brother Brian Ulrich and myself. Julianna Ulrich (Brian's wife) helps with building at times. Rick Cortez (a friend from work) and Christopher Ulrich (another brother) help with the visual effects.

When did you start the BW? What was the inspiration?

I started Brotherhood Workshop in the summer of 2012. I had been doing stop-motion animation since I was 11 years old, and had continued doing animated projects all through college. After graduating, I got a job at a video production company as an editor. It was a great place to work, but it didn't really give me the opportunity to flex my creative muscles as much as I would like. After 2 years, I was very restless, and needed some sort of creative outlet. This was around the same time that LEGO had released its *Lord of the Rings* line, and I happen to be a die-hard *Lord of the Rings* fan. So one day I had an epiphany: why don't I start my own Youtube channel and make LEGO parodies? Kind of like the "How It Should Have Ended" channel. So I dropped by the LEGO store on my way home from work, bought some sets, and made my first video *Orcs, Not Evil* over the weekend. I had no idea how successful the video would be, but when it reached nearly 100,000 hits in a week I realized I had hit on a winning strategy for not only scratching my creative itch, but for finally getting exposure for my work.



Kevin and Brian Ulrich



From the LEGO The Cranky Cavetroll: The Fellowship explores the Caves of Moria...



From An Elvish Valentine: Aragorn and Arwen...



...and an orc with a valentine.



...while below, there is a celebration!



From LEGO Lord of the Rings: Orcs: A group of orcs encounter Aragorn (offscreen)

How did you choose the name Brotherhood Workshop?

As most of the people working on these videos are related, or act like they are related, we wanted a title that had a very familial feel. For a long time before starting the youtube channel we called ourselves "Brotherhood Studios." But when we chose to do LEGO videos, we decided "Studios" sounded too grandiose and pretentious. So we scaled back from a studio to a workshop.

How long does it take you to do a film, from inspiration to final film?

I average about an hour of work for every second of animation. Obviously this can vary shot to shot and video to video, but it's a pretty good estimate. So, a one-minute video will generally take between 50 and 60 hours to create.

Behind the Scenes

The camera used for the stop-motion is a Canon T2I, seen here setting up for a shot from *LEGO The Battle of Helm's Deep*. Below is a shot from the same film after processing and effects are added.



Spotting the Spinner

Article by Joe Meno

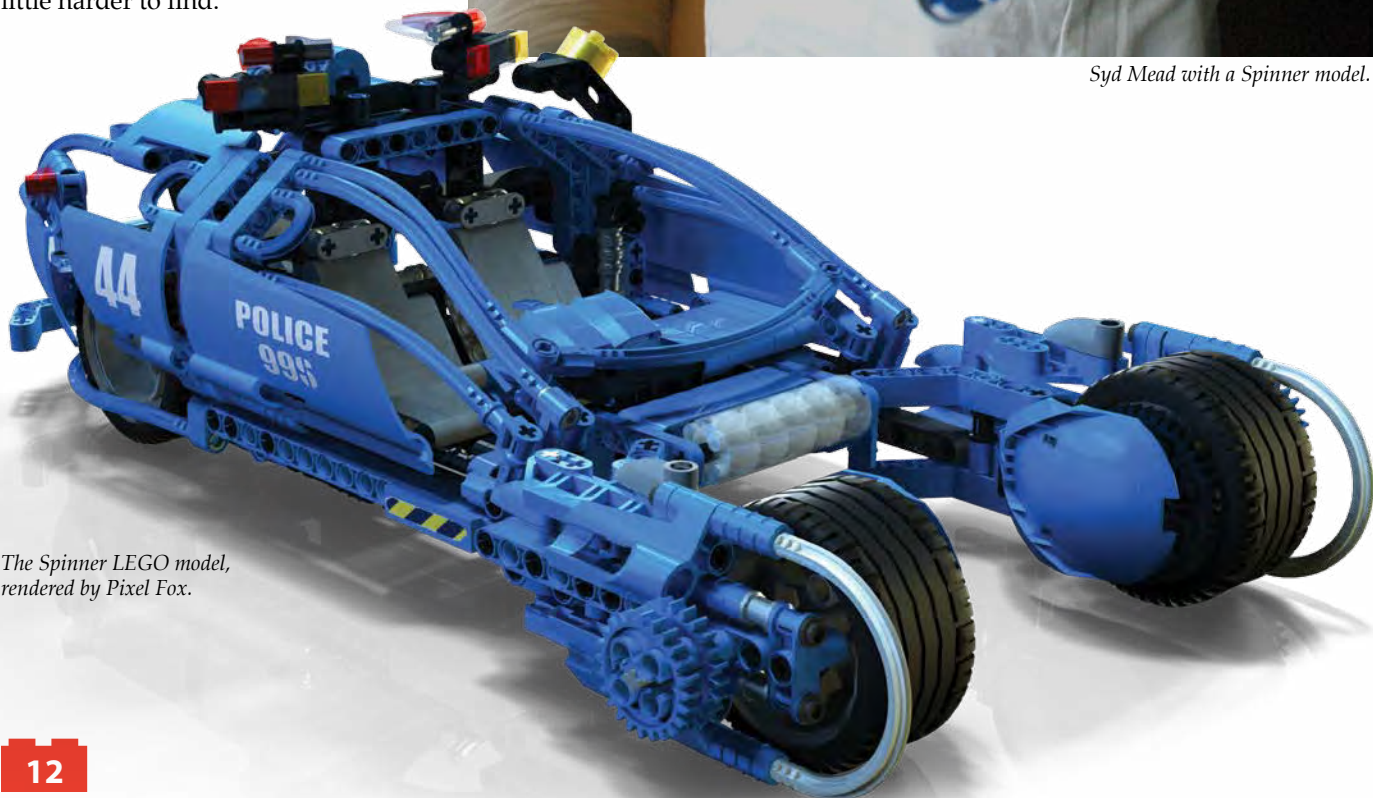
In 2012, I had the good fortune of meeting futurist Syd Mead at Comic-Con International: San Diego. He was signing posters for the *Colonial Marines* video game that was being released later that year, and was a delight to talk to. In the short time that we chatted, I inquired about a LEGO model that he had.

Ten years prior, he was presented with a model of one of his most famous designs, the Spinner from the movie *Blade Runner*. Photos of this model have turned up online (most notably through the website Boing-Boing) and I wanted to know the story behind it. Syd was more than happy to let me visit his studio and examine the model up close.

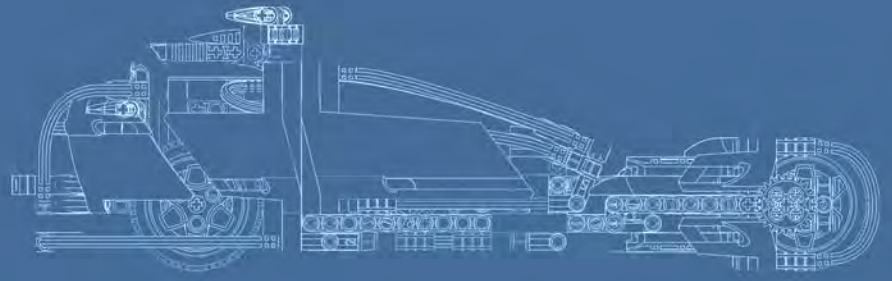
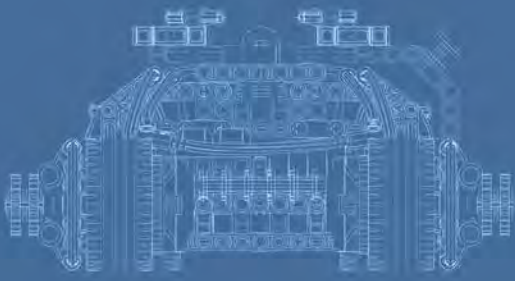
The story behind the model was a little harder to find.



Syd Mead with a Spinner model.



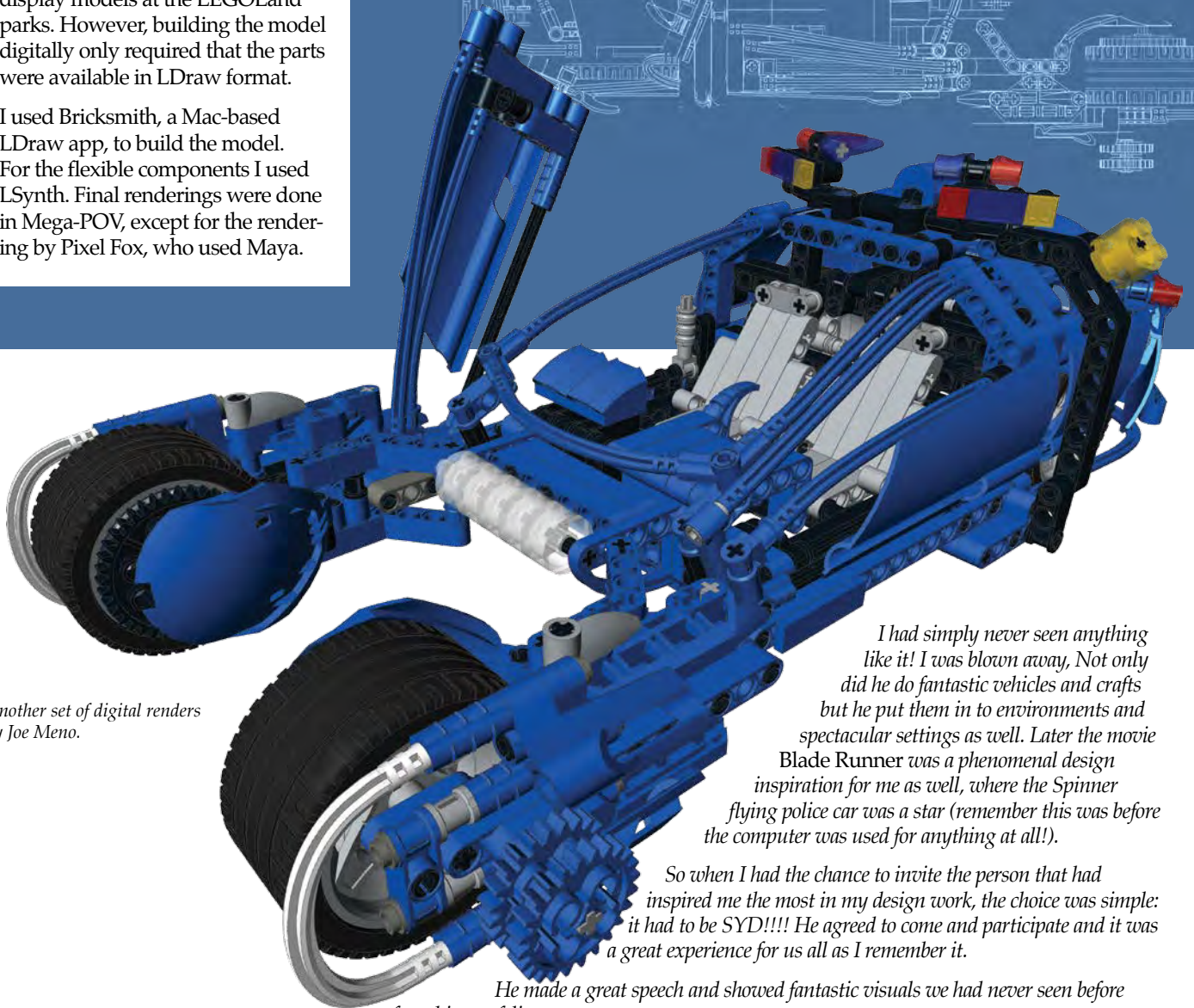
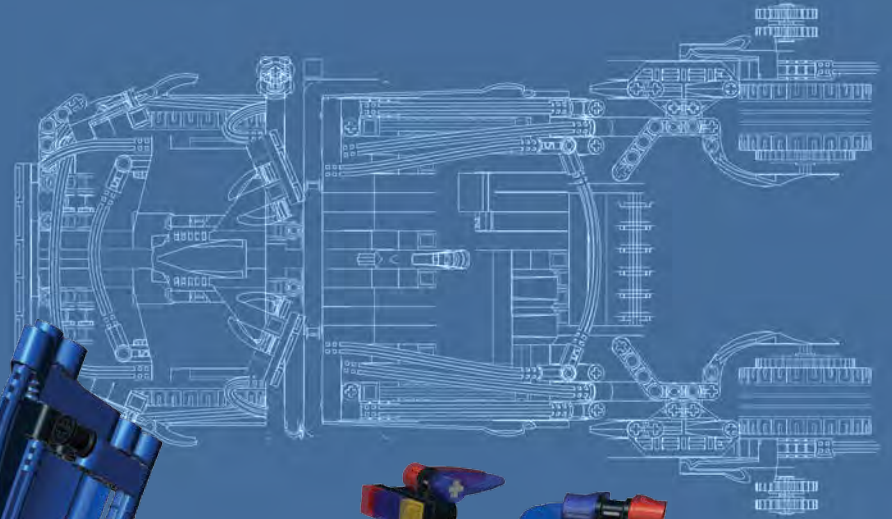
The Spinner LEGO model, rendered by Pixel Fox.



Building the Spinner Digitally

The Spinner as seen in the photos has parts that were never produced for sets. Model Designers and Master Builders have access to such parts in developing models or for building display models at the LEGOLand parks. However, building the model digitally only required that the parts were available in LDraw format.

I used Bricksmith, a Mac-based LDraw app, to build the model. For the flexible components I used LSynth. Final renderings were done in Mega-POV, except for the rendering by Pixel Fox, who used Maya.



Another set of digital renders by Joe Meno.

I had simply never seen anything like it! I was blown away, Not only did he do fantastic vehicles and crafts but he put them in to environments and spectacular settings as well. Later the movie Blade Runner was a phenomenal design inspiration for me as well, where the Spinner flying police car was a star (remember this was before the computer was used for anything at all!).

So when I had the chance to invite the person that had inspired me the most in my design work, the choice was simple: it had to be SYD!!!! He agreed to come and participate and it was a great experience for us all as I remember it.

He made a great speech and showed fantastic visuals we had never seen before from his portfolio.

On stage, he was given the Spinner as a token of thanks from the LEGO Design Team. James Knight (Now Head of Spin Masters design) actually handed over the model to him as



Arlene (Natalie O'Donnell), Vjay's ex-wife and mother to Priyanthi.

Taj: Making a Movie Taj Mahal

Article by Joe Meno, Arthur Gugick and Shannon Sproule
Photography provided by Arthur Gugick, Shannon Sproule and Oziinda Films Pty Ltd.



Priyanthi (Coco-Jacinta Cherian) and Vjay (Mahesh Jadu) share a moment by the model.

Before the release of *The LEGO Movie*, there was a movie that had a LEGO model as a central element. The Australian movie *Taj*, released in 2011, revolved around a father (Vjay) reconciling his relationship with his estranged daughter (Priyanthi) by building with her a LEGO model of the Taj Mahal. However, the model wasn't built by the movie crew; it was built by an AFOL, Arthur Gugick.

Arthur has been featured in *BrickJournal* before in issue 4, showing his architectural builds. Among those models was his rendition of the Taj Mahal, which can be also seen online. The online gallery was where Arthur was discovered. Arthur remembers, "When Winston Furlong (director of *Taj*) first contacted me in February 2008, I thought I was being punked. I couldn't believe that somebody was actually making a movie with a central theme of a LEGO model. He had asked one of the set builders to make a LEGO model of the Taj Mahal and the guy told Winston that he couldn't do this. So he got online and he googled "LEGO Taj Mahal." Because I built two models previously he saw them and called me up! I guess I realized he was serious after he started sending me money to my Paypal account in order to pay for the pieces for the LEGO model."

Making the Taj Mahal model for the movie posed other challenges. When Arthur built it, they asked him to build it very sophisticated, but very delicate looking and yet look like it could have been built by a precocious 12-year-old. Winston also had creative control over the model, which is atypical. As Arthur notes, "I would send pictures to him and Winston would say, 'Make this bigger, make this bigger, make this smaller.' I would reply, 'Yeah, but that's not what the Taj Mahal looks like...' And he'd answer, 'You don't understand, I want it to look good on film.' So he knew the way it was going to be filmed and how it was going to look. He also knew that when most of the people look at the Taj Mahal, they look at it from the ground, looking at like a 30 degree angle up at it. Most people don't look at it at eye level. As a result, the model I built was not architecturally sound in some ways, but it does look architecturally sound when it gets filmed."

Another challenge was getting the materials needed to build the model. Winston was trying to get in contact with the LEGO Group and after some effort, finally managed to speak with some people and worked out a deal with LEGO Australia to give him the parts to build a second LEGO Taj Mahal. For this, Arthur had to do an inventory of

Building

Building the LEGO Movie Coliseum

Article by Imagine Rigney

Imagine with his model.





Building something from a movie is almost always a daunting project. Building from a movie that hasn't been released is an even bigger challenge. Imagine Rigney takes this in stride:

I like a challenge. The LEGO® Movie premiere you say? Build something and get to see the advance screening? Why yes. Yes I can. And I like to build big, so the coliseum scene from the movie trailers was the only way to go—and finally a chance to utilize all the colored bricks and greebly bits in my collection. To be honest, I had no idea that much color in one MOC could actually make me dizzy while building. It's definitely a *High Definition* build.

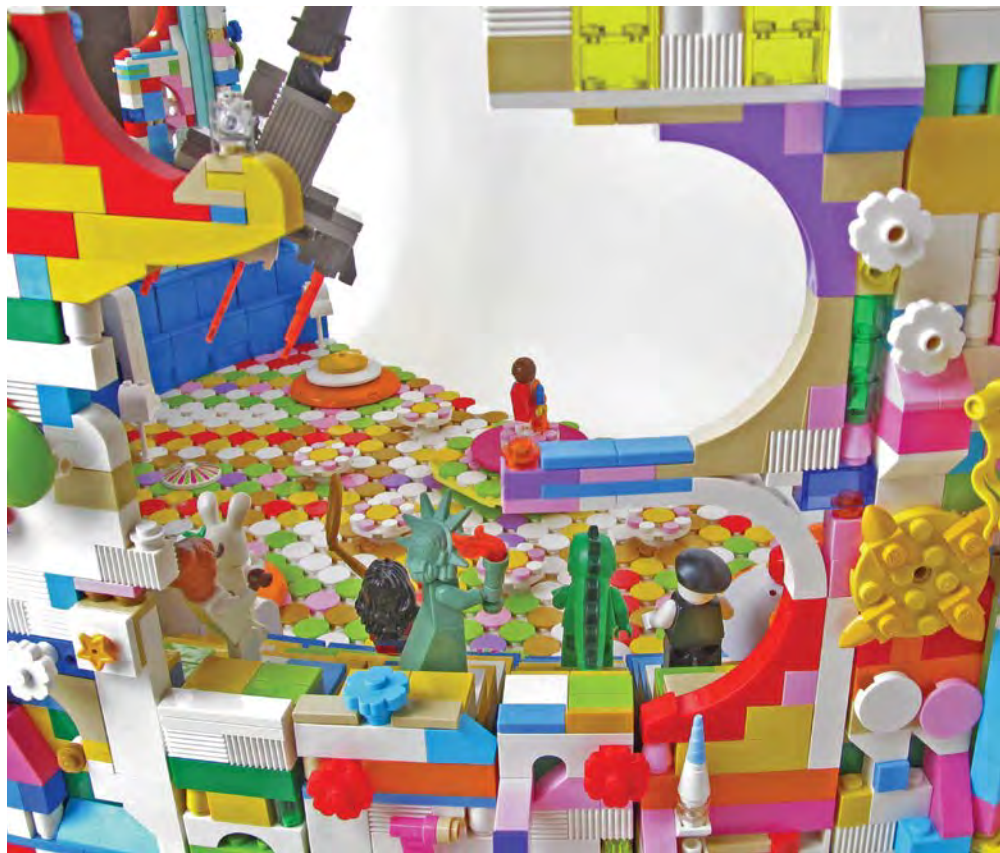
Since there were only a few interior glimpses of the structure in the movie trailers, I kept playing those over and over, pausing and taking screen shots so I could piece together what I thought it might actually look like. When I got to the point where my Mom was singing "Everything is Awesome!" around the house all day I knew I'd played them enough. While attending the premiere screening of the movie I think I said out loud, "Oh! It's a dog!" when finally getting to see the exterior. So I guess the lower section I built is essentially the collar around the dog's neck—or something like that. The build took five days and a couple of parts orders; I needed more of the round tiles for the coliseum floor and some hinges to get the curve of the walls.

LEGO® Movie Coliseum was built by Imagine Rigney for The LEGO® Movie premiere screening display by CoWLUG (www.cowlug.net) at United Artists Colorado Mills Stadium 16 IMAX Movie Theater in Lakewood, Colorado on February 1st, 2014.



See more of Imagine's work on Flickr at <http://www.flickr.com/photos/imaginbrickzone/> or scanning the following QR code:

BrickJournal will have more of Imagine's work in a future issue!



A look at the outside of the coliseum behind Abraham Lincoln.

Building

The Real LEGO® Master Builders!

Article by Joe Meno

*Photography and art provided
by LEGO System A/S.*

*Big Figure session photos
by Julien Vandon.*



How was character design determined?

This was a similar process to how the vehicles were created. Sketches and ideas were sent back and forth, and sculpts and graphics were refined along the way. In some instances the directors had a very clear vision of what they wanted a specific character to look like. For others we drew up suggestions and worked with the studio until we were all happy.

There are 183 characters in the movie, so there was a lot to keep track of. We had a huge chart on the wall of our design studio to keep a record of who had been approved and who was still work in progress.

We designed many of the figures in the same way we do when we are creating them as actual toys. New wigs were sculpted and 3D-scanned, and accessories were created using digital 3D programs. As the whole movie was supposed to look like real LEGO minifigures had come to life, the surfacing team at Animal Logic wanted to know every detail of where split lines and molding patterns were likely to be, and what kind of textures would be used on the plastic surfaces, so they could recreate them to make the animated figures seem as real as possible.



Above: Michael Fuller works on the Sea Cow model.

Matthew Ashton and Michael tracking the many minifigures in the LEGO Movie.





More color development is done for Unikitty.



Matteo Oliverio (left) and Matthew discuss color choices on Unikitty.



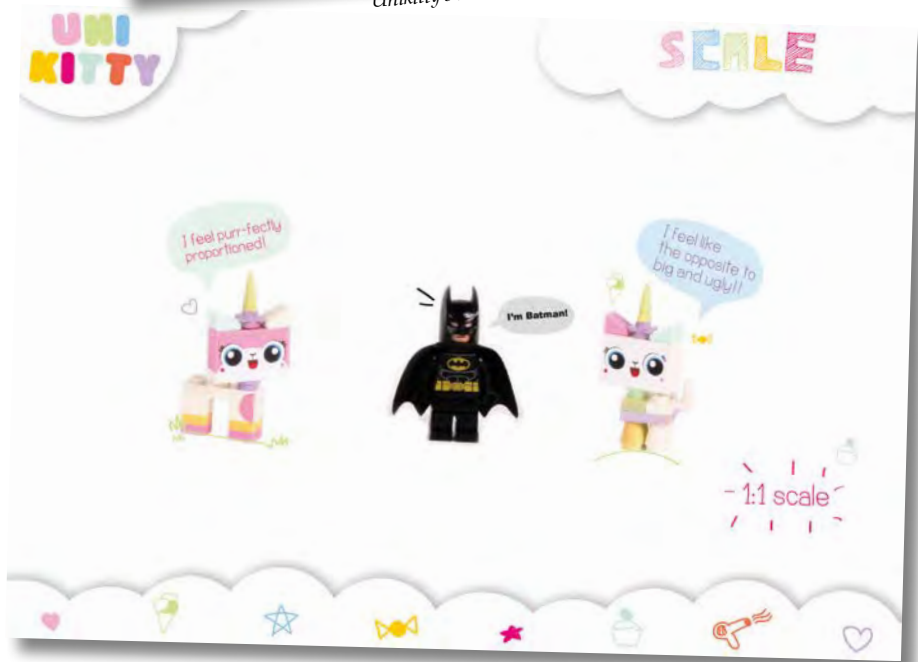
Unikitty as seen in the Cloud Cuckoo Palace (set 70803).



Unikitty's movement model sheet, with two versions of the character!



Unikitty and her designer, Matthew Ashton!



Building


Some of *The LEGO Movie's* 'Extras'



This model was made by Chris Malloy for the category, "History Books."

*Article by Joe Meno
Photography provided
by Chris Malloy, James
McConnell, Alatarriel Elensar,
Karf Oohlu, Ryan Howerter,
Simon Liu, and Will Heron*

In late 2013, the LEGO photo site ReBrick held a MOC competition for its curators to place their work into *The LEGO Movie*. Models that were bookmarked by ReBrick members and curators were submitted for consideration for 'cameos' in the movie. Of the categories selected for consideration, seven models won.

While some of the models did not make it to the movie, all are great examples of building and creativity. 

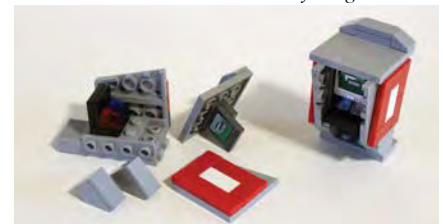
This model was made by James McConnell for the category, "Voting Machines."



Below is a breakdown of the voting machine.



Note that the voting console is a new inverse bracket with the studs inside, as opposed to the older brackets that have the studs facing out.





The completed display.

Recreating The LEGO Movie's Bricksburg

Article by Ed Diment

Well, I don't think anyone can have escaped the fact that *The LEGO Movie* is upon us. There has been great publicity surrounding the fact and Warner Brothers have been thinking up as many ways to promote the movie as possible... which is where we come in. We are Bright-Bricks, a UK firm of professional LEGO artists headed up by me and my business partner Duncan Titmarsh, the UK's only LEGO Certified Professionals. In November last year, Warner Brothers and LEGO® UK contacted us with an interesting inquiry.

As part of the promotion of *The LEGO Movie* in Europe, Warner Brothers had decided to have a touring *LEGO Movie* venue. This would involve a huge truck whose trailer would fold out to create a large internal space where lots of activities would be available for visiting children to get involved in. The crown jewel of this mobile fun palace was to be a copy of part of the set from *The LEGO Movie*, i.e. Will Farrell's Bricksburg LEGO town layout. This was to be no ordinary static model; the design was to incorporate a snaking road between the buildings that would allow a LEGO car to travel through the set. Cameras strategically placed in the buildings would then film this drive from different angles before the footage became edited into a mini movie. Best of all, children would get to design and build their own vehicles to allow Emmet, *The LEGO Movie* lead character, to ride in them along the street.


So, our brief was to build the set, incorporate a snaking road, and create a channel in this so that a custom track could run underneath moving a mini platform on which each vehicle would be placed to make its run. We were to simulate the buildings as closely as possible, populate the scene, make skyscrapers nice and tall, fit all of this into a tight, predefined space, and all in a little over three weeks, including design and delivery... oh and Christmas fell in the middle of all this—a piece of cake, then!

Film Camera

*Design and Instructions
by Tommy Williamson*



About this issue's model:

When I was nine years old, two very influential things happened to me. One was a trip to Universal Studios Hollywood and the other was the release of a little space movie you've probably never heard of, *Star Wars*. There is no other way to describe it, I was rocked to my core. I didn't know how, I didn't know why (and I still don't) but I knew from way back then, I was going to work on movies. And this month two of my passions are colliding with the release of *The LEGO Movie*. So what better DIY Fan Art model could you have when you're thinking LEGO and thinking movies than a classic movie camera? I hope you enjoy building it as much as I enjoyed designing it. 



Tommy Williamson is no stranger to *BrickJournal*, having been featured previously for his Jack Sparrow miniland scale figure. Since then, he has gone farther into building, making some remarkable *Star Trek* props and other models. He's now doing a column for *BrickJournal: DIY Fan Art*. Here, Tommy takes a little time out from his busy schedule at BrickNerd.com to make a model of his choosing for the magazine.

Parts List (Parts can be ordered through Bricklink.com by searching by part number and color)

Qty	Part	Color	Description
1	50746.dat	Black	Slope Brick 31 1 x 1 x 0.667
4	50746.dat	Dark Bluish Gray	Slope Brick 31 1 x 1 x 0.667
1	30039.dat	Light Bluish Gray	Tile 1 x 1 with Groove
1	30374.dat	Light Bluish Gray	Bar 4L Light Sabre Blade
2	30374.dat	Black	Bar 4L Light Sabre Blade
1	3062b.dat	Black	Brick 1 x 1 Round with Hollow Stud
4	4070.dat	Light Bluish Gray	Brick 1 x 1 with Headlight
1	47905.dat	Black	Brick 1 x 1 with Studs on Two Opposite Sides
1	52107.dat	Black	Brick 1 x 2 with Studs on Sides
1	4595.dat	Black	Brick 1 x 2 x 0.667 with Studs on Sides
4	6091.dat	Light Bluish Gray	Brick 2 x 1 x 1 & 1/3 with Curved Top
1	2654.dat	Light Bluish Gray	Dish 2 x 2
1	577b.dat	Black	Minifig Lightsaber Hilt with Bottom Ring
2	3024.dat	Black	Plate 1 x 1
1	4073.dat	Metallic Dark Gray	Plate 1 x 1 Round
1	85861.dat	White	Plate 1 x 1 Round with Open Stud
5	4081b.dat	Black	Plate 1 x 1 with Clip Light Type 2
3	49668.dat	Light Bluish Gray	Plate 1 x 1 with Tooth
1	3023.dat	Black	Plate 1 x 2
2	3023.dat	Dark Bluish Gray	Plate 1 x 2
3	63868.dat	Black	Plate 1 x 2 with Clip Horizontal on End (Thick C-Clip)
1	60478.dat	Dark Bluish Gray	Plate 1 x 2 with Handle on End
1	3794a.dat	Black	Plate 1 x 2 without Groove with 1 Centre Stud
3	3460.dat	Black	Plate 1 x 8
2	85984.dat	Black	Slope Brick 31 1 x 2 x 0.667
1	2819.dat	Black	Technic Steering Wheel Small
1	98138.dat	Light Bluish Gray	Tile 1 x 1 Round with Groove
1	2555.dat	Black	Tile 1 x 1 with Clip
1	2555.dat	Light Bluish Gray	Tile 1 x 1 with Clip
1	3070b.dat	Black	Tile 1 x 1 with Groove
1	3069b.dat	Light Bluish Gray	Tile 1 x 2 with Groove
3	4162.dat	Black	Tile 1 x 8
1	4150.dat	Light Bluish Gray	Tile 2 x 2 Round
1	30028.dat	Black	Tyre 8/40 x 8 Slick Smooth

In the spirit of *The LEGO Movie* and the themes of this *BrickJournal*, this article will be about reimagining *The LEGO Movie's* Collectible Minifigure Series parts to create characters from various Video sources (Commercials, TV, and Film). The goal is a twist on the thoughts from the last article about further developing the ability to think outside the box from the inside this time. Let that single element speak to you and help create a unique custom figure. In this article I will primarily use a purist or minimalist's approach to customization; however a few examples will be completely custom-modified creations. Many of the ideas jump out at me from the videos I watched growing up, so this article will reference several older shows; look them up, they were quite funny.

To begin any project such as the one for this article, all parts must be examined for what they are and what they can be. Some custom figures simply need a small tweak, and others need a complete reimagining from the smallest part up.

Minifig Customization 101: Reimagining the LEGO Movie Collectible Minifigures!

by Jared K. Burks

Selina Kyle

The bad girl everyone, including the Dark Knight, loves, Catwoman. Behind every costume is a person hiding from their costumed persona. Their street clothes have to be polar opposite of their hero attire; as such, Ms. Kyle, the wild Catwoman, is a mousey old maid in appearance. Mrs. Scratchesen-Post's face and hair are nearly perfect for Ms. Kyle. The rest of the figure isn't bad for the character either; however several outfits might also suit the character including Series 11 Grandma or my favorite, the Series 10 Librarian. With Batman in the film I hope they make some Selina Kyle reference about Mrs. Scratchesen-Post.



Max Headroom: Collaborative concept with Michael "Xero" Marzilli

MmmmmmmmmaaaXxxxxx Headroom. Don't know how many people remember a show called *Max Headroom*. He was an artificial intelligence that sputtered when he talked. He is pretty simple to make; take the body from the series 8 Businessman, Emmet's head, and then top it off with President Business' hair. While this isn't a perfect translation, it is a pretty good purist approach. Pres. Business' hair could be modified slightly (paint and sanding in on the edges), but again, this article is to get you thinking about what can be made, so we are speaking to vision here. In the photo the figure's hair color has been digitally altered and the background was digitally added as well.

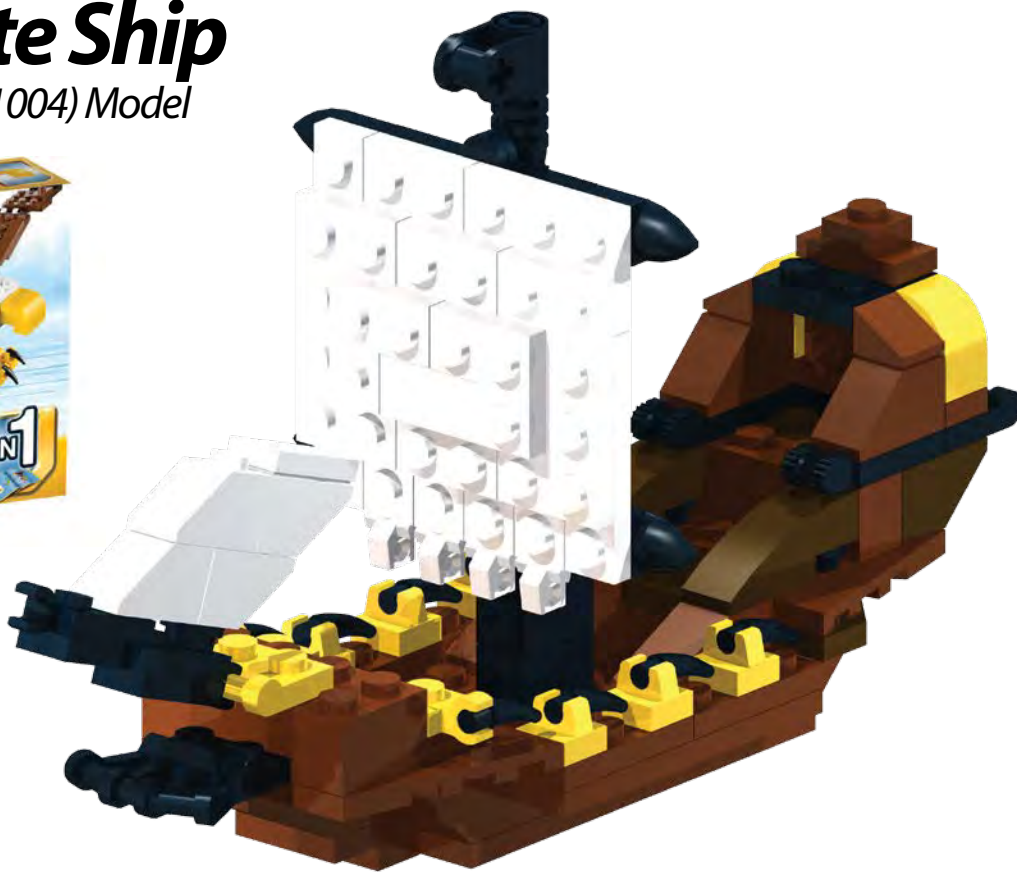


You Can Build It

MINI Model

Micro Pirate Ship

Additional Creator (#31004) Model



*Design and Instructions
by Christopher Deck*

Hello everybody, I am glad to join you in *BrickJournal!* With *The LEGO® Movie* theme of this issue, alternate models celebrate another revival after the introduction of the Creator 3-in-1 building sets. In my eyes, both series are most welcome after the alternate model ideas disappeared from the back sides of LEGO set boxes. As a little tribute to this alternate building creativity, we want to build a special micro model in this issue for which you will only need the pieces from 3-in-1 creator set 31004 "Fierce Flyer". With this limited parts choice we will expand this set into a 4 in 1 building kit.

Most pieces of the set are brown, with only few differently colored pieces, like yellow, black and white. These are, however, also perfect colors to build a pirate ship! A rather unexpected alternate model for a set focusing on creatures, but it works out reasonably well! The ship features a bowsprit with sail and forepeak beneath. Besides the main mast and sail, a yellow highlighted railing leads to the quarter deck with the captain's cabin. With 130 pieces in this little ship, there are almost no leftover parts.

I hope you will enjoy building this, and keep your inspiration coming for even more alternate models! Many sets have a great potential for alternate models which only wait to be discovered!

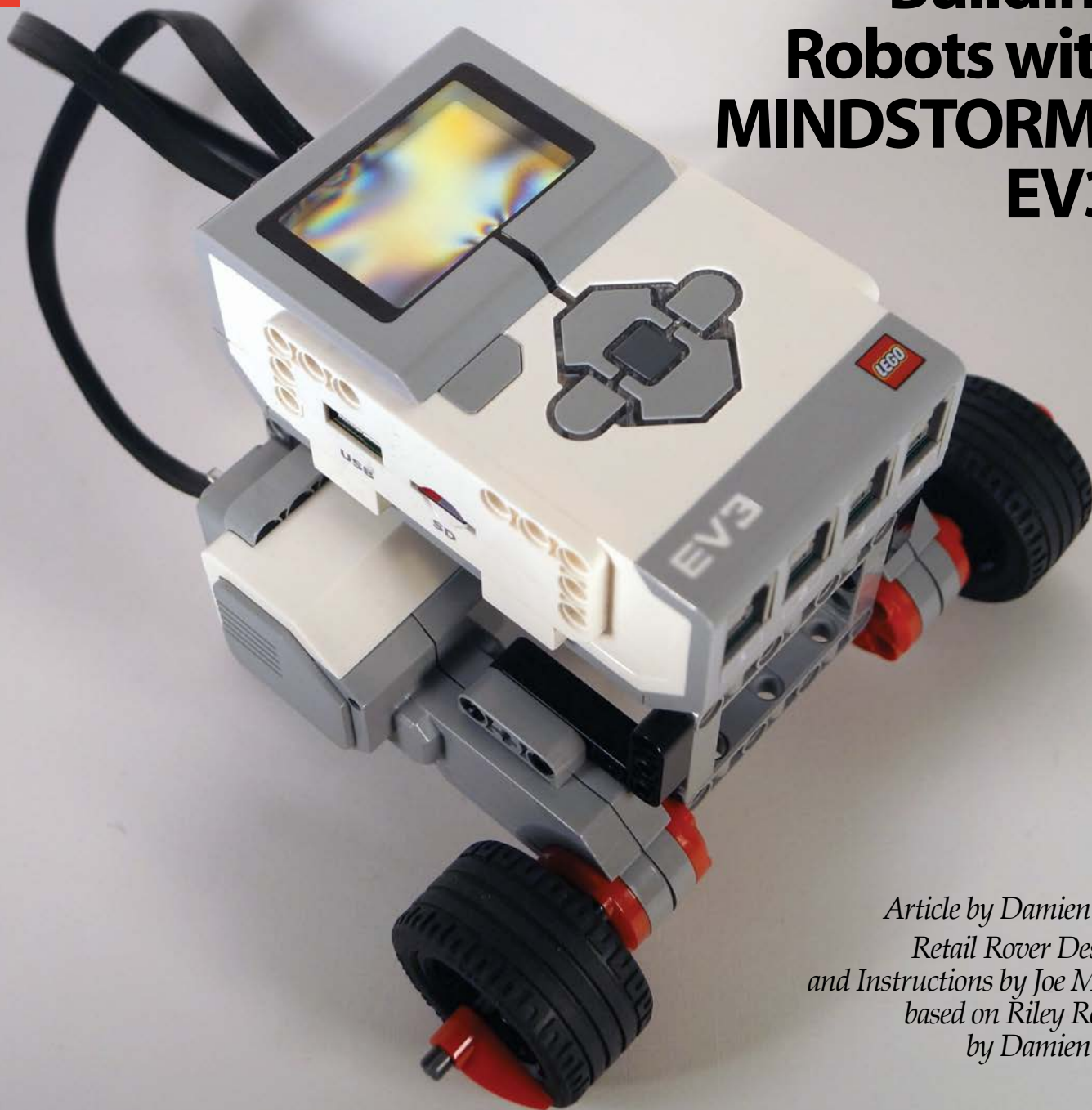
See you next time! 



You can visit Christopher's webpage by going to www.deckdesigns.de or scanning this QR code!



Building Robots with MINDSTORMS EV3!



*Article by Damien Kee
Retail Rover Design
and Instructions by Joe Meno
based on Riley Rover
by Damien Kee*

One of the most important commands we can give a robot, especially a moving robot, are commands that tell the motors what to do. This article will show you how to build a simple robot and get it moving accurately.

The Robot

The great thing about LEGO is that you can build just about anything you can imagine. This is great when we have unlimited LEGO and all the time in the world, but often (especially in classroom situations) we have some pretty restrictive conditions. This article uses a version of my popular RileyRover Base. It can be built from a

standard LEGO Retail EV3 Core set and should take no more than 15 minutes to put together. You can also use the EV3 Education edition, but you might have to flex your problem-solving skills to get around the slightly different arrangement of parts.

I'm the first to admit it is not the strongest robot design out there, but it is quick to build and uses very few parts, meaning you can get on to the programming a lot quicker!

You can find the Building Instructions for the Education version of RileyRover and additional attachments at www.damienkee.com.

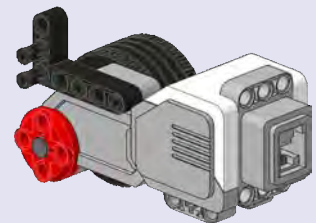
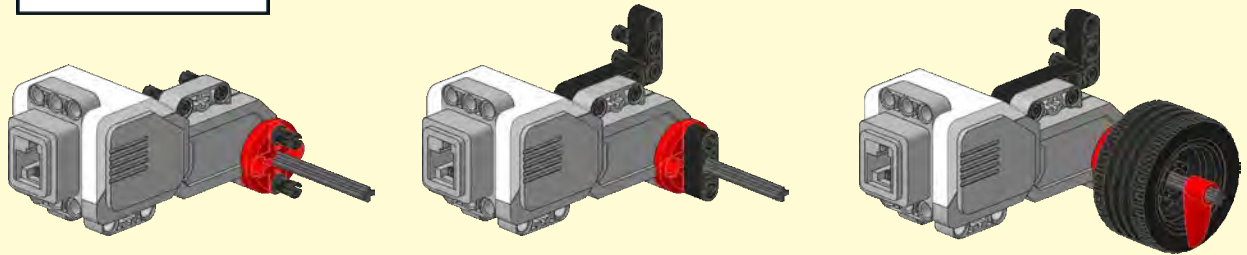
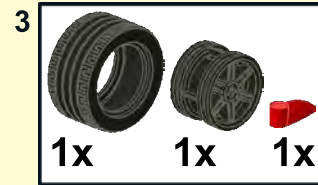
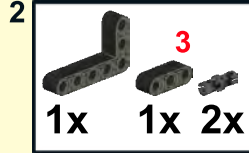
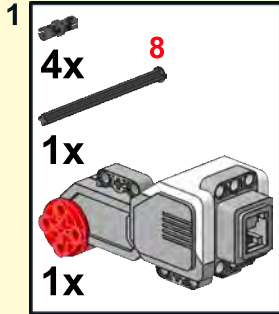
Parts List

(All parts are in the EV3 MINDSTORMS Retail set)

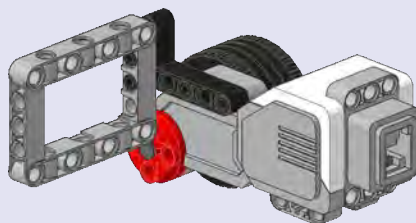
Qty	Color	Part	Description
1	White	95646.dat	Electric Mindstorms EV3
2	White	95658.dat	Electric Mindstorms EV3 Large Motor
2	Red	32062.dat	Technic Axle 2 Notched
2	Dark Bluish Gray	55013.dat	Technic Axle 8 with Stop
2	Black	32523.dat	Technic Beam 3
2	Black	32526.dat	Technic Beam 3 x 5 Bent 90
2	Light Bluish Gray	64179.dat	Technic Beam 7 x 5 with Open Center 5 x 3
1	Black	40490.dat	Technic Beam 9
1	Black	41239.dat	Technic Beam 13

Qty	Color	Part	Description
2	Light Bluish Gray	92907.dat	Technic Cross Block 2 x 2 x 2 Bent 90 Split (Pin/Twin Axle)
2	Light Bluish Gray	3673.dat	Technic Pin
26	Black	2780.dat	Technic Pin with Friction and Slots
2	Red	41669.dat	Technic Tooth 1 x 3 with Axlehole
2	Rubber Black	44309.dat	Tyre 22/ 30 x 30 ZR
2	Light Bluish Gray	42610.dat	Wheel Hub 8 x 11.2 with Centre Groove
2	Black	56145.dat	Wheel Rim 20 x 30 with 6 Spokes and External Ribs

1

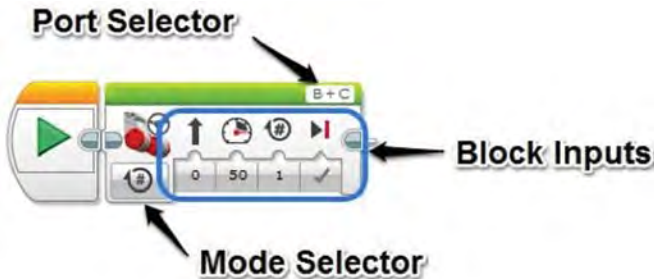


2



The Programming

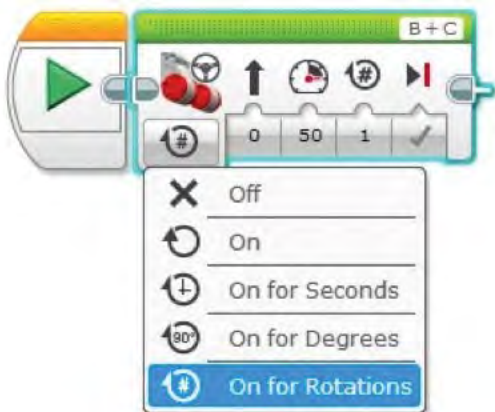
The EV3-G programming environment is very user friendly, aimed at young kids, and you don't need a programming background to get started. General robot commands are represented by Blocks, and each of the Blocks can be customized through the use of Modes and Block Inputs (ie. the 'Move Steering' Block will tell the robot to drive around, but the Mode and Block Inputs will control how far/how fast/what direction, etc.).



The most common block I use is the Move Steering, as it is designed to control a robot with two opposing wheels (sometimes called differential drive or wheel chair configuration). If both motors go forward, the robot goes forward; if both go backwards, the robot goes backwards. If the motors go in different directions, then the robot will turn. By changing the ratio of speed between each motor, you can get very fine control of turning angles.



The Move Steering Block has 5 different Modes: OFF, ON, On for Seconds, On for Degrees, and On for Rotations. Each of these modes do the same essential thing—move the wheels—but allow you to choose how they will be moved. The Block Inputs then allow you to fine-tune the movement.



The block inputs are the four icons beside the mode button and are from left to right:

Steering (arrow icon with direction) – Left or right? Gentle turn or sharp turn? Direction is defined by the value, from -100

to 100, with -100 being a sharp left turn, 0 being straight, and 100 being a sharp right turn.

Power – Fast or slow? Forwards or Backwards? Speed is defined by the value, from -100 (reverse) to 100 (forward). 0 is no power.

Duration – How much should the wheels turn? Seconds/ Degrees/ Rotations

Here are a few examples:



Forward Slow for 1.5 seconds



Backwards fast for 827 degrees



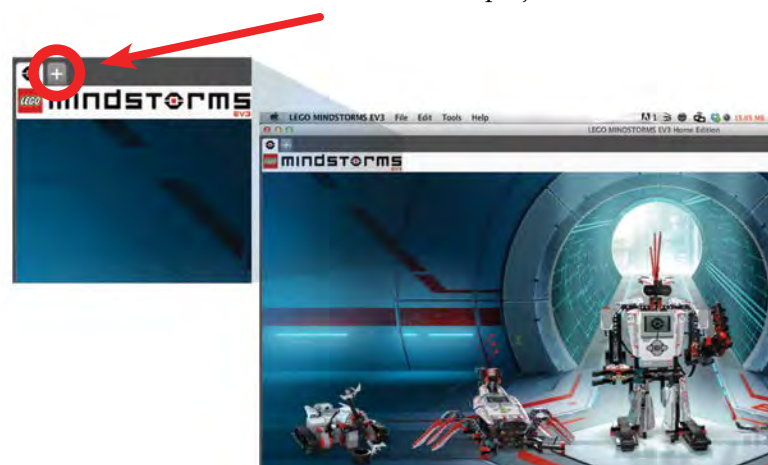
Sharp turn left for 3.8 rotations of the wheels

To make the robot perform multiple moves (forward, turn, backwards) we can put Programming blocks together.



Making Your Robot Move

If you haven't installed the MINDSTORMS EV3 software into your computer, now is the time to do it. Once installed, open the program and go to the upper left corner. Click on the '+' tab to create a new project.



MORE MINIONS. MORE
DESPICABLE.

DESPICABLE
ME 2



It's a Car! And...

Article by Joe Meno and
Andrew Goodwin

Photography
by Andrew Goodwin

LEGO CUUSOO is a crowdsourcing platform for builders interested in making sets. Designs are proposed online and supported by site visitors. When a design reaches 10,000 supporters, the LEGO Group will place the design under review to evaluate its viability as a set. If the design passes review, it will go through the LEGO production process and become an official LEGO set! With this issue, *BrickJournal* will be spotlighting a fan design and CUUSOO.

The Designer and His Model...

Andrew Goodwin is a 50-year-old Medical Practitioner in Adelaide, Australia, who has been building, playing and creating with LEGO for over 40 years. In that time he has built various models. One model he has presented online is on the LEGO crowdsourcing Cuusoo platform.

Inspired by the movie *Despicable Me 2*, Andrew built Lucy Wilde's car, which in the movie converts to a submarine and airplane. He built his model to do the same, with some clever building techniques and additions. The result is a unique LEGO model that allows you to create three models out of one! Take a look at the various forms of his model!

Mobile Crane MK II

*Article by Geoff Gray
Photography by Geoff Gray
and The LEGO Group*

The new mobile crane from The LEGO Group continues a long tradition of offering a great set, packed with features and solid technical design. I have been building official TECHNIC sets for a couple of decades, and I am always impressed with the way the sets come to life, and this set is no different. I have to admit that I am not nearly accomplished enough to come up with designs as elaborate or as stable as the large TECHNIC sets from LEGO, but as long as they continue to make these sets, I will still be happy.

**IF YOU ENJOYED THIS PREVIEW,
CLICK THE LINK TO ORDER THIS
ISSUE IN PRINT OR DIGITAL FORMAT!**



BRICK JOURNAL #28

Learn what went into the making of *The LEGO Movie* and other brickfilms with moviemaker **DAVID PAGANO**, chat with brickfilmmakers *The Brotherhood Workshop*, sit in on a talk with the makers of *LEGO: A Brickumentary*, a look at *MINDSTORMS* building, minifigure customization by **JARED BURKS**, step-by-step "You Can Build It" instructions by **CHRISTOPHER DECK**, AFOLs by **GREG HYLAND**, & more!

(84-page FULL-COLOR magazine) \$8.95
(Digital Edition) \$3.95

http://twomorrow.com/index.php?main_page=product_info&products_id=1143