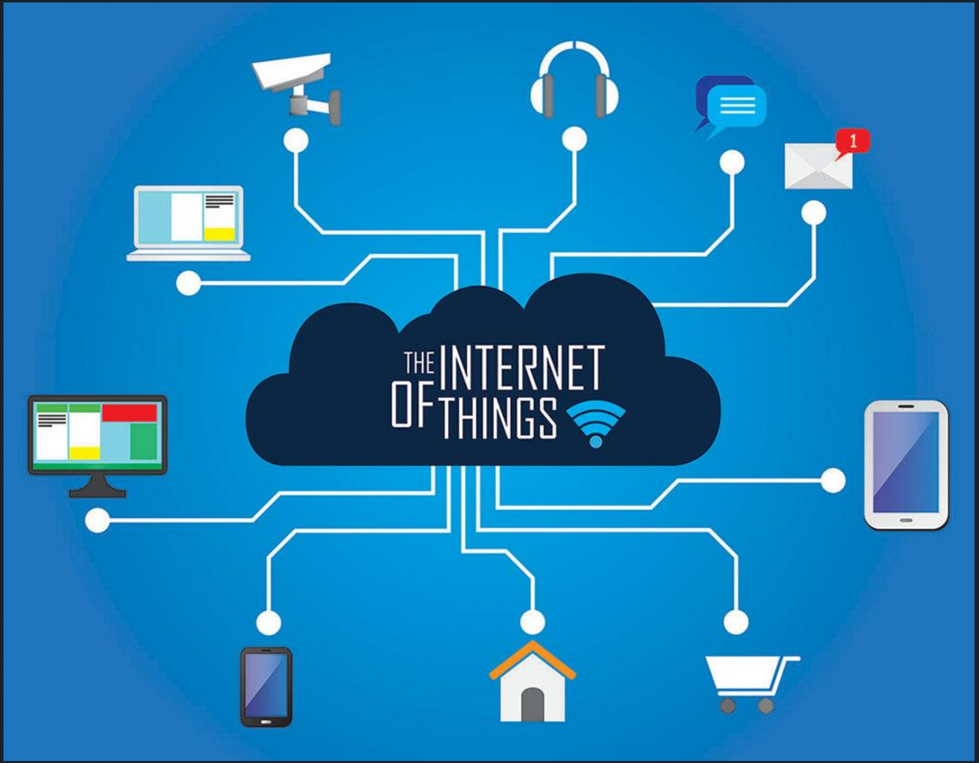
Pico Engine JavaScript Module

Presented By Adam Burdett.

Pico Engine



KRL Example

```
rule hello_world {

  select when echo hello

  send_directive("say", {"something": "Hello World"})

}
```

JavaScript Modules

```
rule hello_world {

  select when echo hello

  send_directive("say", {"something": random:word()})

}
```

JavaScript Modules

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  send_directive("say", {"something": cowsay:say("Pico")})

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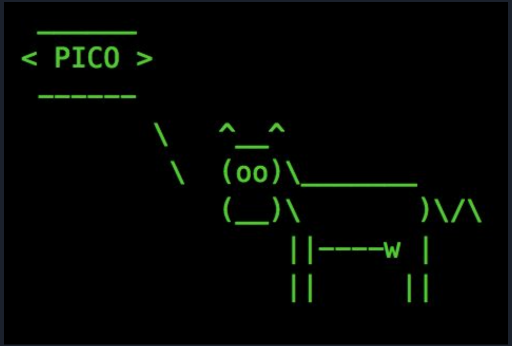

```
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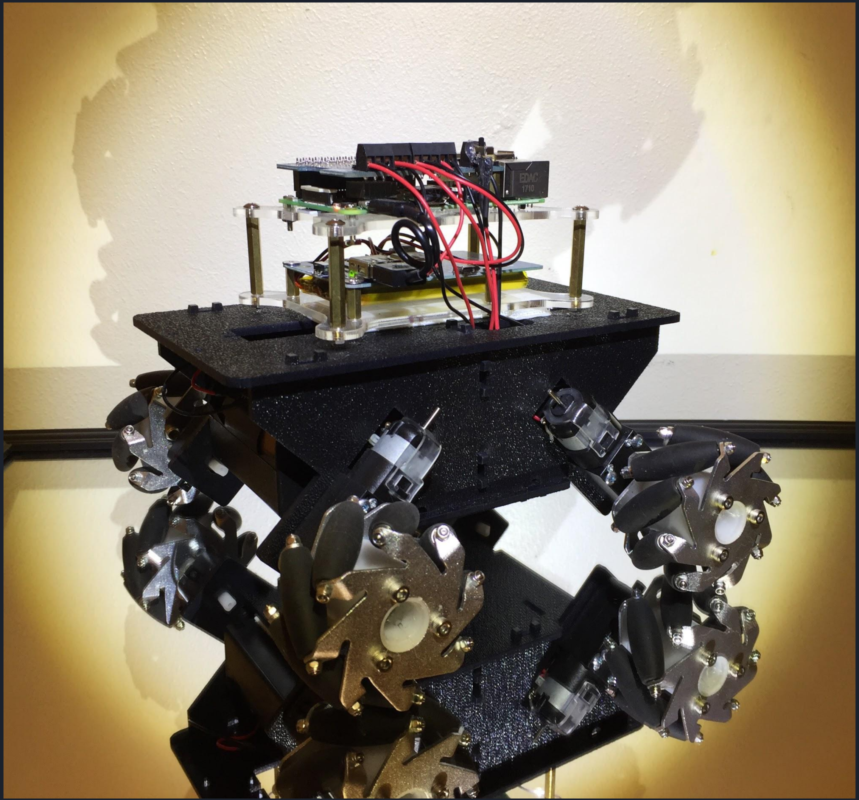
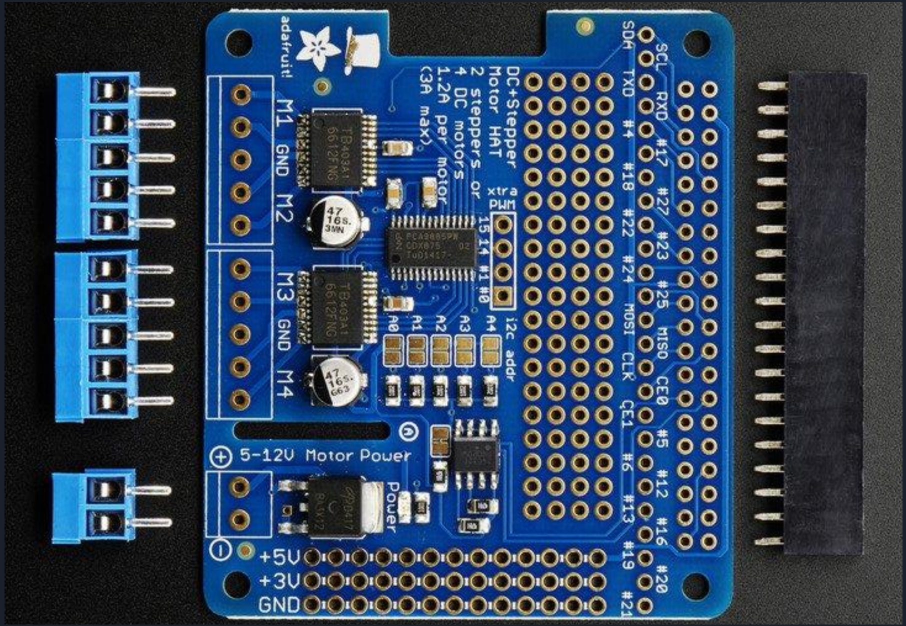
```



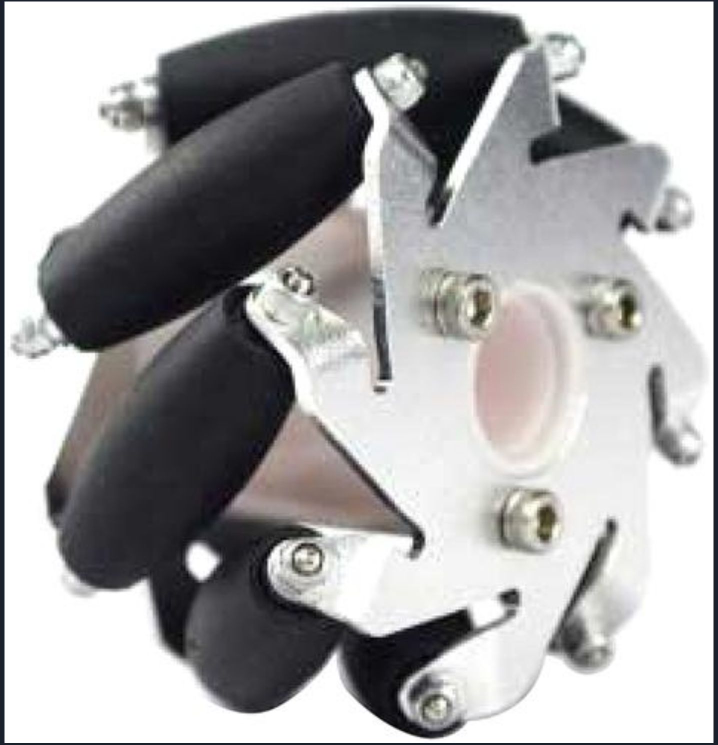
Pico Rover

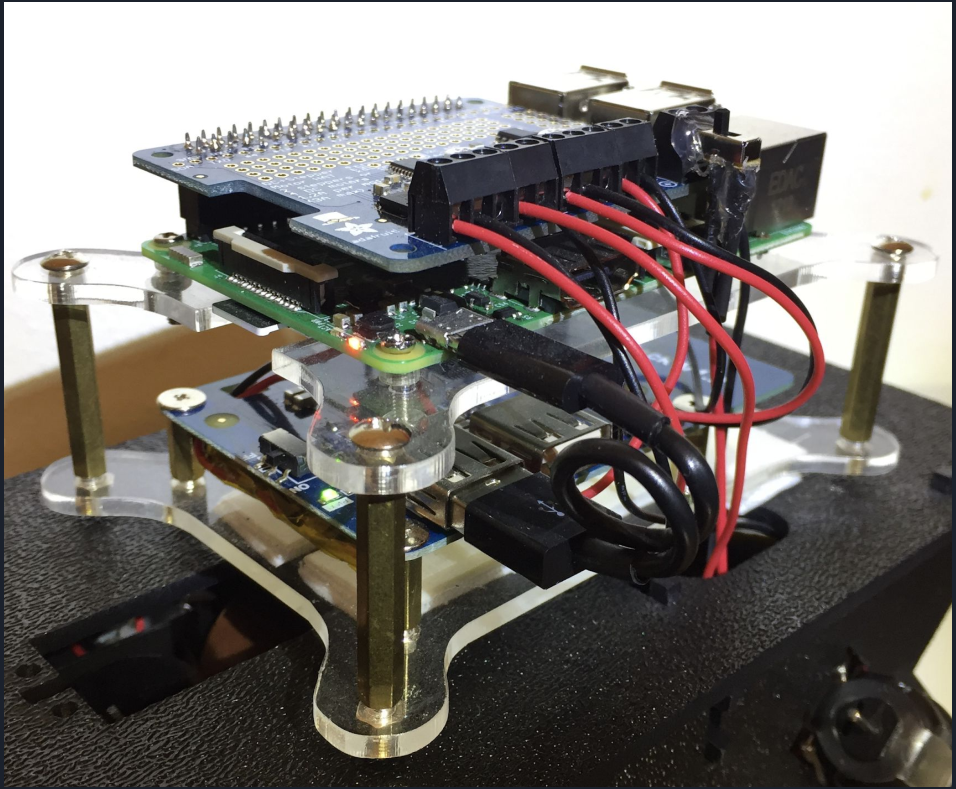
Raspberry Pi

Motor Controller



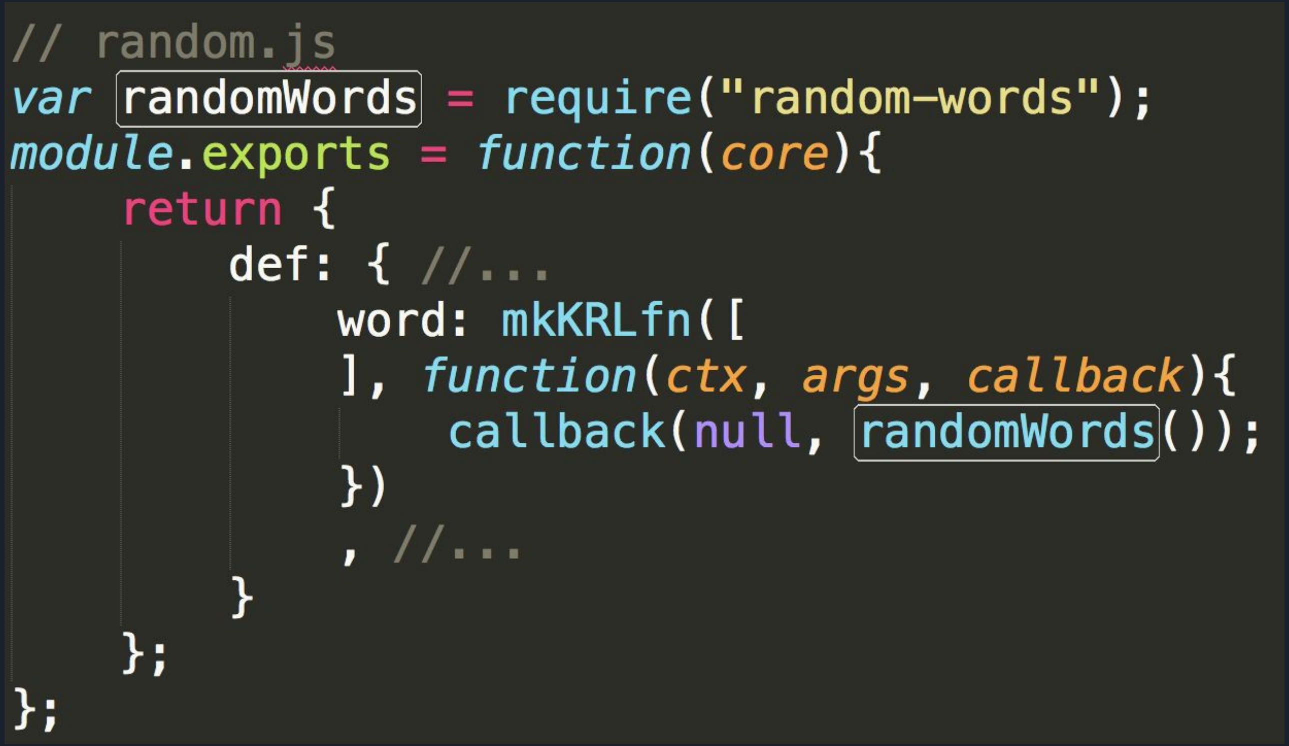
Mecanum Wheels





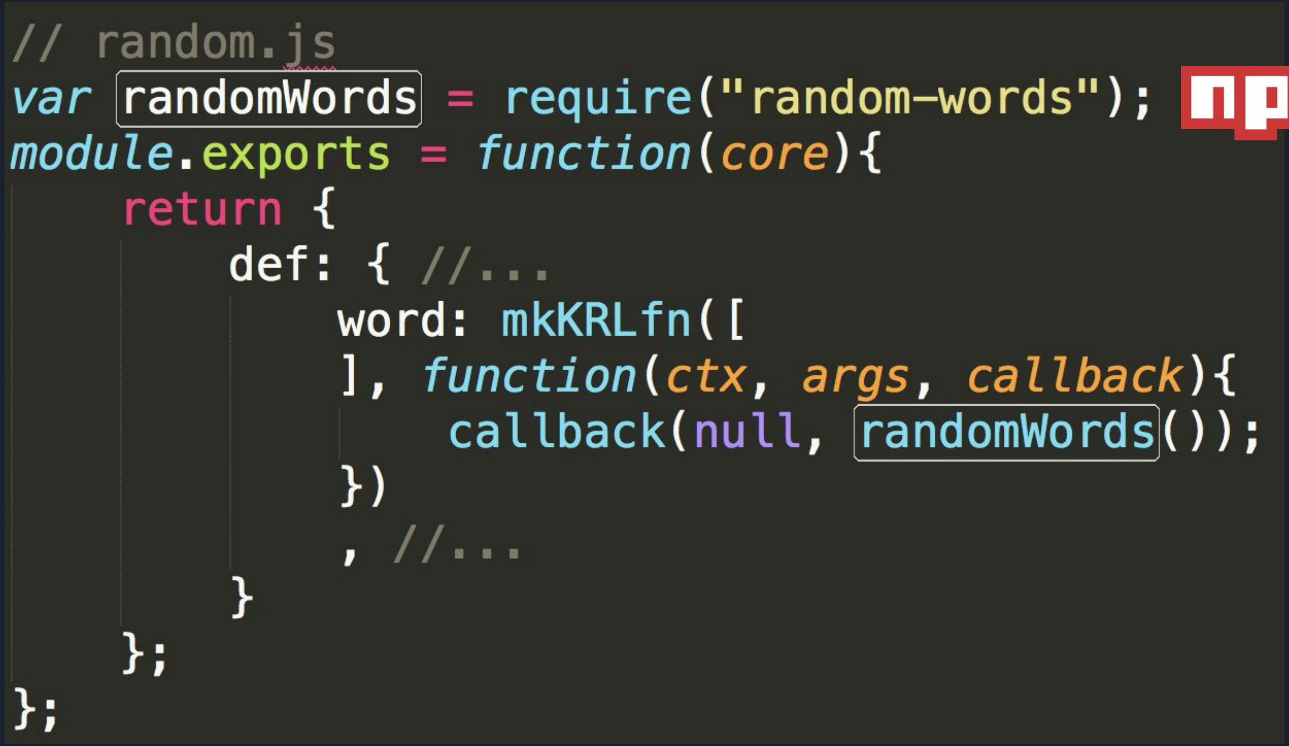
Pico Rover

Extending KRL



```
// random.js
var randomWords = require("random-words");
module.exports = function(core){
    return {
        def: { //...
            word: mkKRLfn([
            ], function(ctx, args, callback){
                callback(null, randomWords());
            })
            , //...
        }
    };
};
```

Extending KRL



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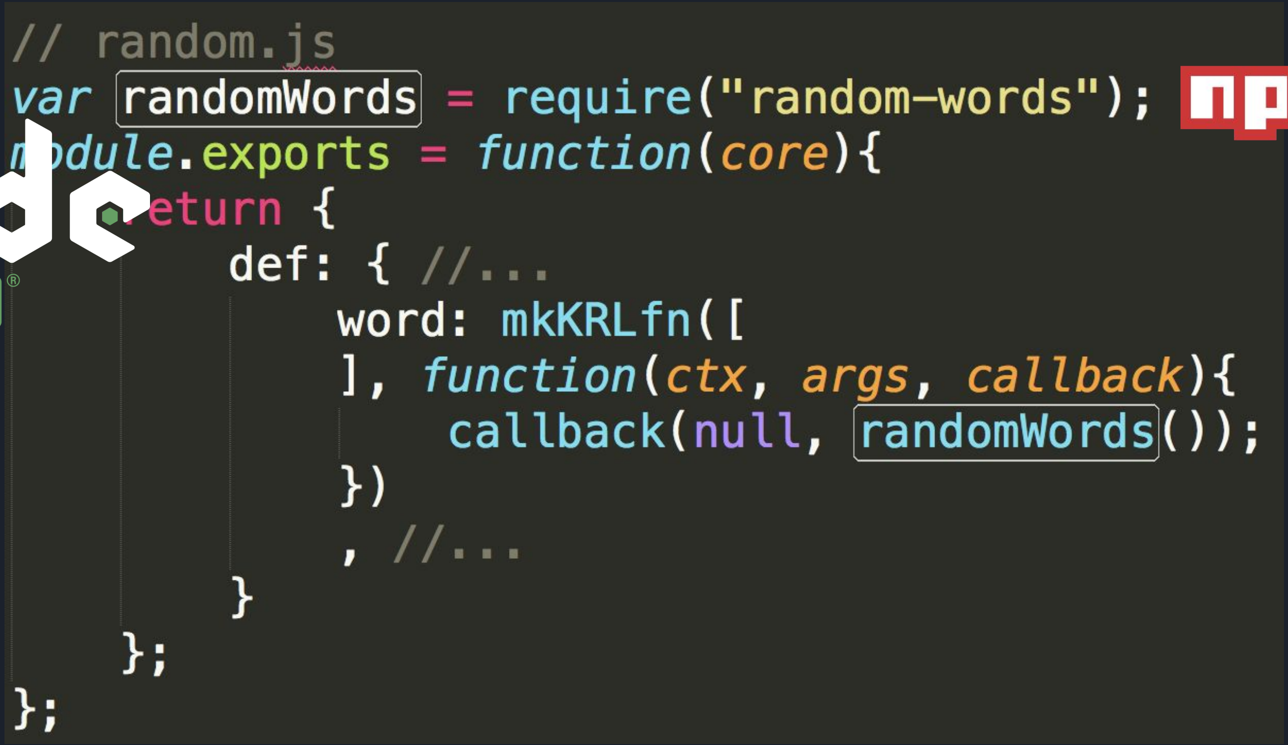

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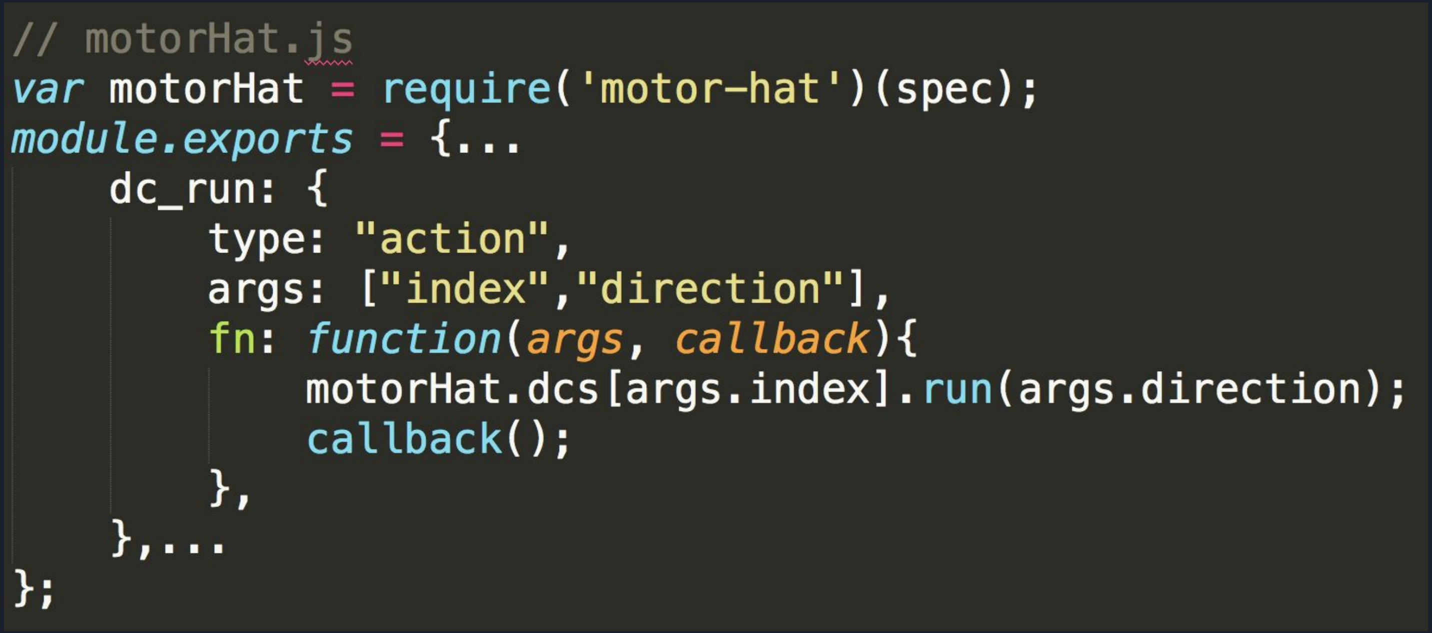
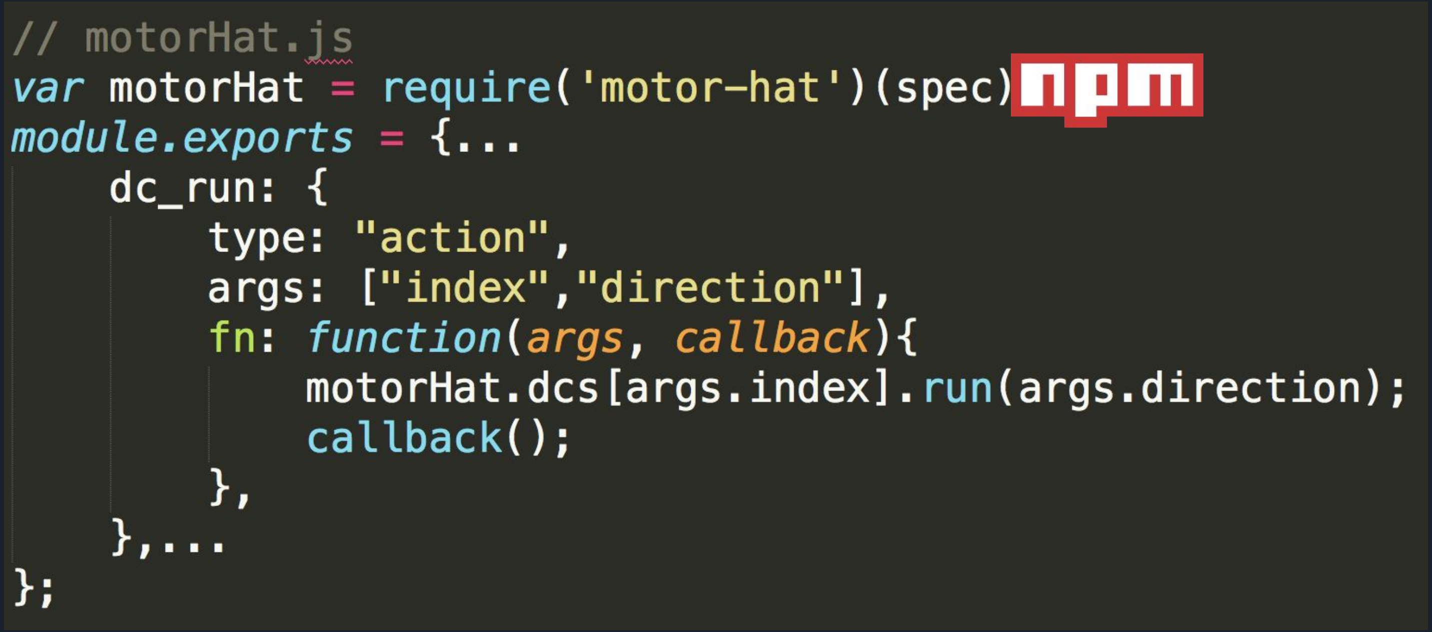


```
// motorHat.js
var motorHat = require('motor-hat')(spec);
module.exports = {...
    dc_run: {
        type: "action",
        args: ["index","direction"],
        fn: function(args, callback){
            motorHat.dcs[args.index].run(args.direction);
            callback();
        },
    },...
};
```

Extending KRL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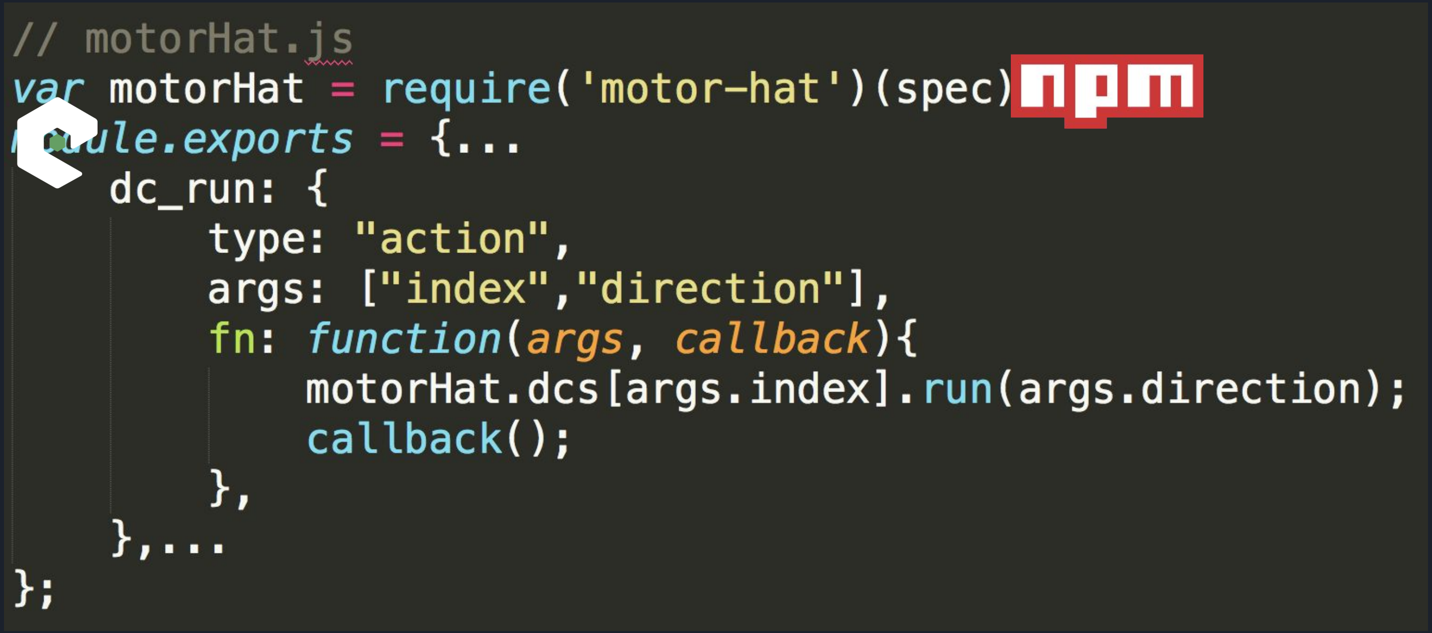
Extending KRL



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            callback();
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    },...
};
```

MotorHat Modules

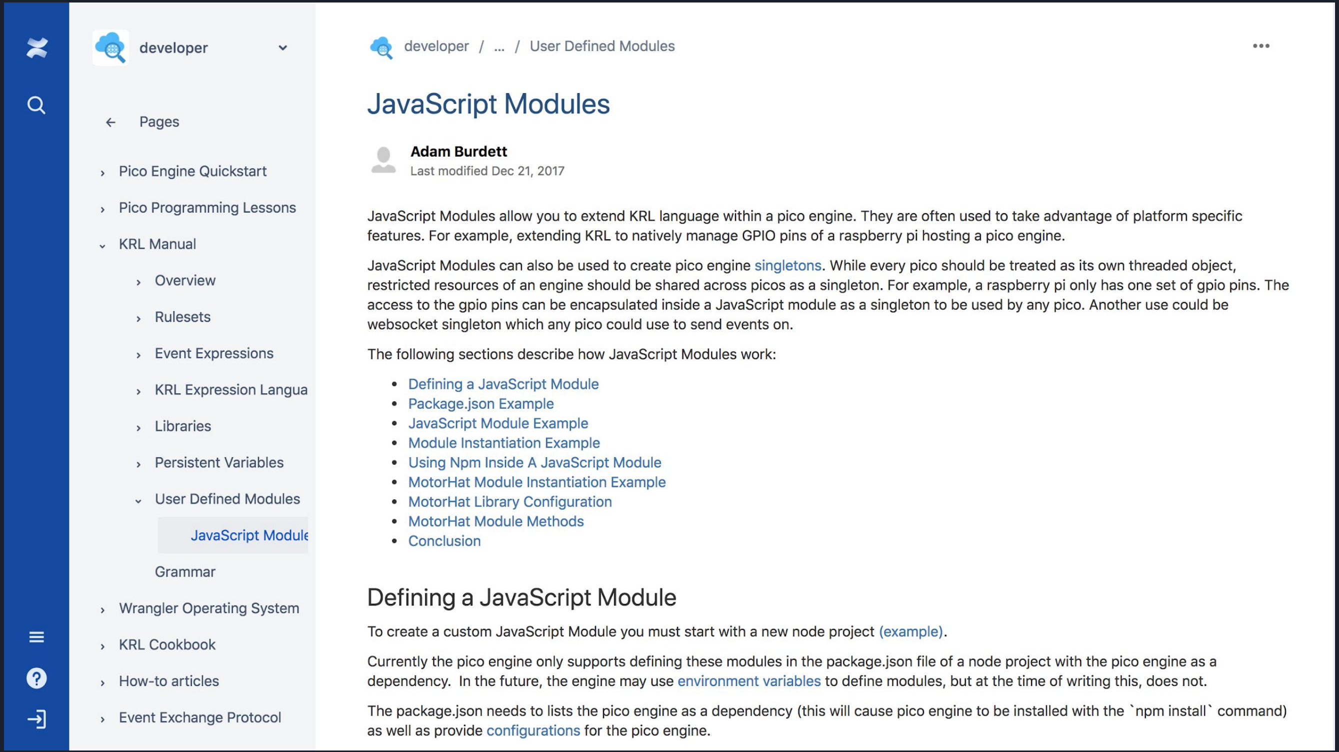
```
rule hello_world {

  select when echo hello

  motorHat:dc_run(1,"fwd")

}
```

Documentation



JavaScript Modules

Adam Burdett
Last modified Dec 21, 2017

JavaScript Modules allow you to extend KRL language within a pico engine. They are often used to take advantage of platform specific features. For example, extending KRL to natively manage GPIO pins of a raspberry pi hosting a pico engine.

JavaScript Modules can also be used to create pico engine singletons. While every pico should be treated as its own threaded object, restricted resources of an engine should be shared across picos as a singleton. For example, a raspberry pi only has one set of gpio pins. The access to the gpio pins can be encapsulated inside a JavaScript module as a singleton to be used by any pico. Another use could be websocket singleton which any pico could use to send events on.

The following sections describe how JavaScript Modules work:

- Defining a JavaScript Module
- Package.json Example
- JavaScript Module Example
- Module Instantiation Example
- Using Npm Inside A JavaScript Module
- MotorHat Module Instantiation Example
- MotorHat Library Configuration
- MotorHat Module Methods
- Conclusion

Defining a JavaScript Module

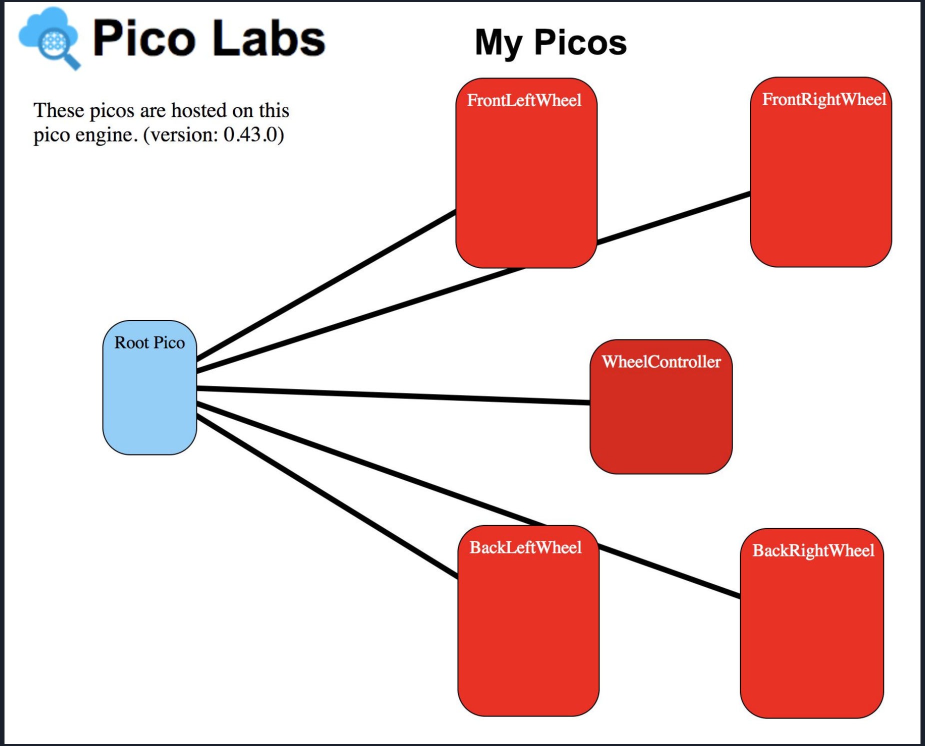
To create a custom JavaScript Module you must start with a new node project (example).

Currently the pico engine only supports defining these modules in the package.json file of a node project with the pico engine as a dependency. In the future, the engine may use environment variables to define modules, but at the time of writing this, does not.

The package.json needs to lists the pico engine as a dependency (this will cause pico engine to be installed with the `npm install` command) as well as provide configurations for the pico engine.

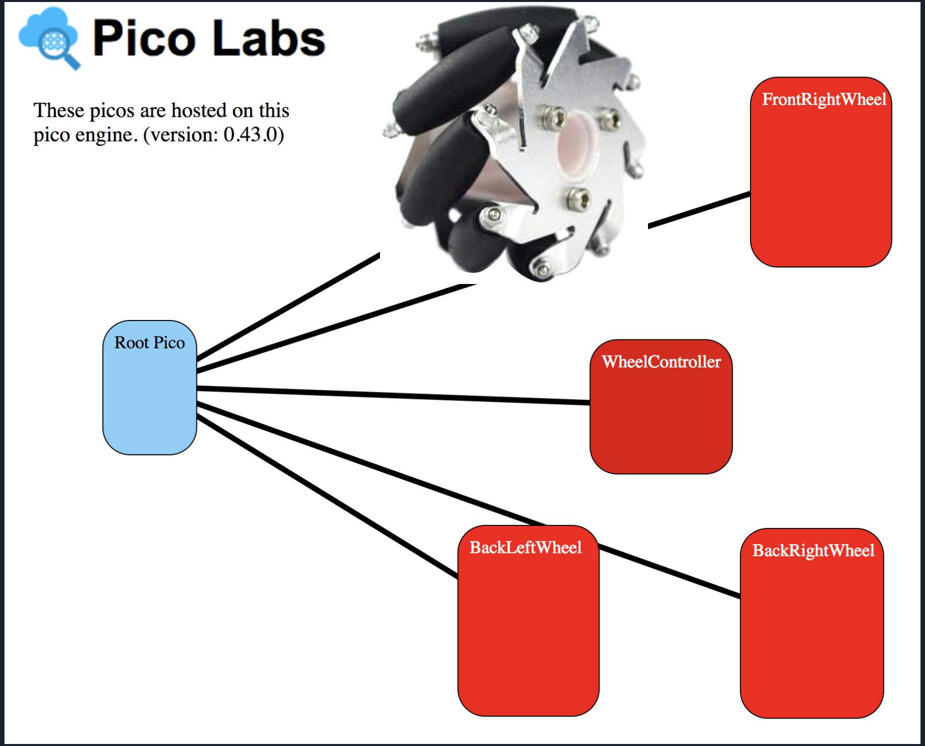
https://picolabs.atlassian.net/wiki/spaces/docs/pages/96370693/JavaScript+Modules

Pico Rovers System



These picos are hosted on this pico engine. (version: 0.43.0)

Pico Rovers System



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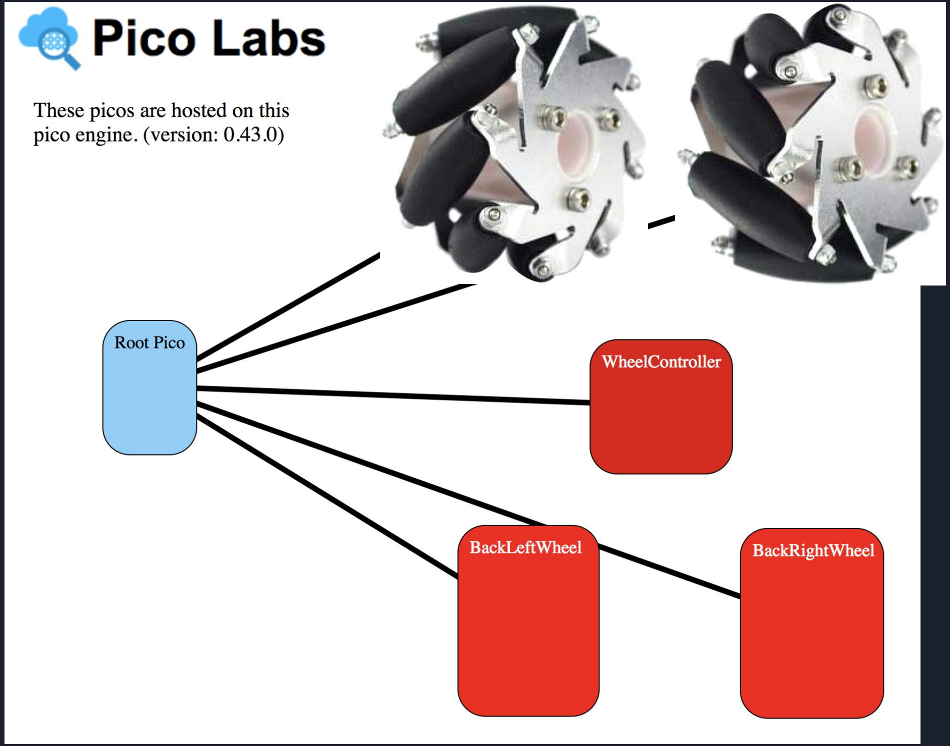

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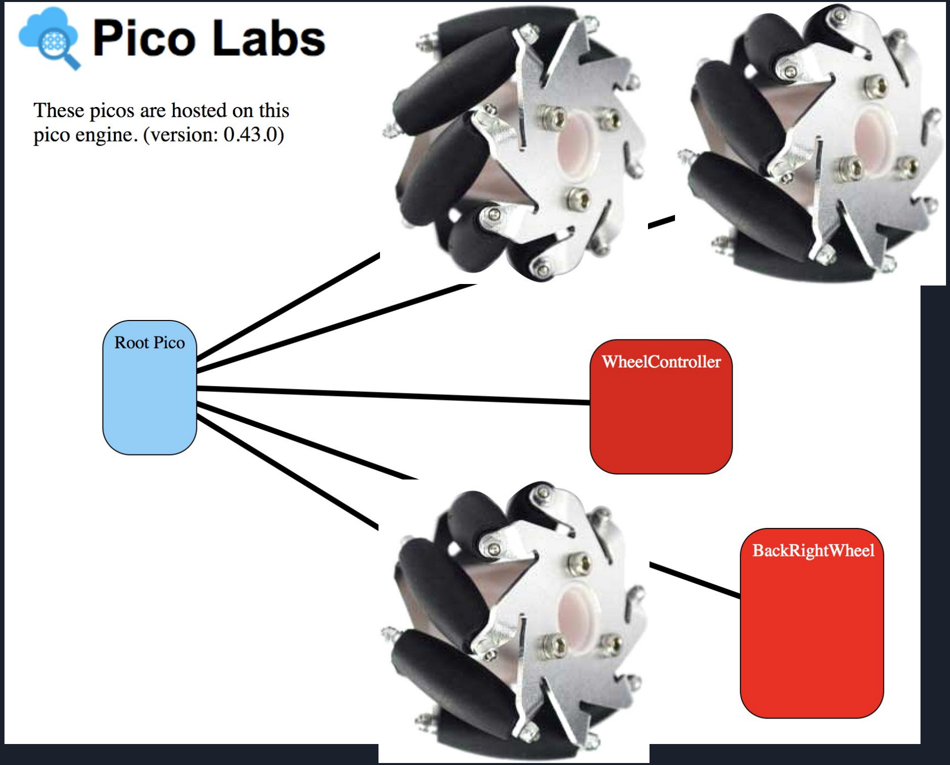

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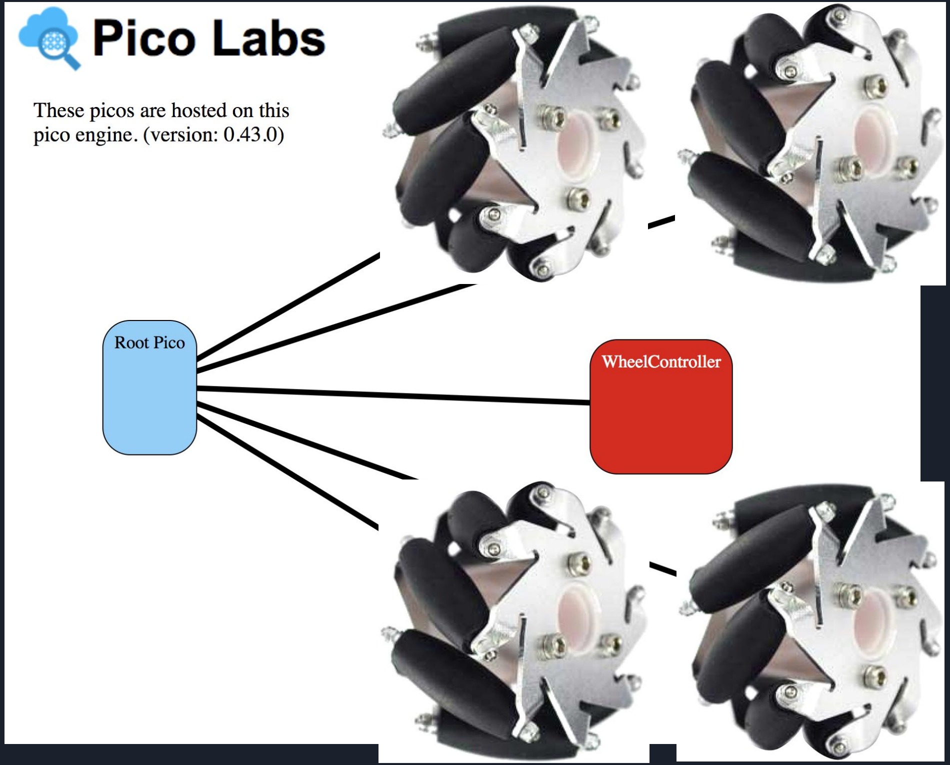

These picos are hosted on this pico engine. (version: 0.43.0)

Pico Rover Demonstration

Questions

References

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References

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