## How to Hyperloop

This document contains an example of how we can write a program that our robot can use to determine which hyperloop number to assign to each person based on the number that they arrive with.

In this example, we will be converting between base 3 and base 11 but when you write your code you will need to convert between base 2 and base 16.

Our code starts off by declaring a new variable called hyperloop which will store the hyperloop number that we want to send the passenger to.

```
// Example: base 3 to base 11
let hyperloop = "0";
```

Our robot has a sensor that detects the number allocated to the next incoming passenger and assigns it to the personNumber variable as a string. This allocation happens automatically outside of this new code that we are writing so we do not need to worry about declaring or updating this variable.

We then perform a series of checks using IF and ELSE IF statements. For every possible personNumber that we expect to see, we check if the current value of the variable is equal to that expected value. If a particular statement is true, we can allocate the correct number to the hyperloop variable and skip the rest of the ELSE IF statements. If that particular statement isn't true, we then proceed to the next ELSE IF statement.

```
// A simple hardcoded mapping of trinary numbers to equivalent base
eleven numbers
if (personNumber == "0") { hyperloop = "0"; }
else if (personNumber == "1") { hyperloop = "1"; }
else if (personNumber == "2") { hyperloop = "2"; }
else if (personNumber == "10") { hyperloop = "3"; }
else if (personNumber == "11") { hyperloop = "4"; }
else if (personNumber == "12") { hyperloop = "5"; }
else if (personNumber == "20") { hyperloop = "6"; }
else if (personNumber == "21") { hyperloop = "7"; }
```

```
else if (personNumber == "22") { hyperloop = "8"; }
else if (personNumber == "100") { hyperloop = "9"; }
else if (personNumber == "101") { hyperloop = "A"; }
```

Once we have skipped or completed every ELSE IF statement, our final line of code calls the function MovePersonToHyperloop(), passing in the value of the hyperloop variable as an input. This function has already been declared for us and instructs the robot to tell the first passenger in line to move to the particular hyperloop capsule indicated by the hyperloop variable.

```
MovePersonToHyperloop(hyperloop);
```

That's it! You can use this code as a base for your own answer, however, you will need to change the number systems used from base 3 and 11 to base 2 and 16.