



Mapping the API Landscape

Mike Amundsen
API Academy
@mamund

JUST IMAGINE —

THE ROCKET LANES OF TOMORROW



PERHAPS NOT EVERYONE WILL BE ABLE TO AFFORD A ROCKETMOBILE. BUT EVERYONE WILL OWN A SET OF PORTABLE JETS, INEXPENSIVE ROCKET-TUBES STRAPPED TO ONE'S SHOULDERS, WHICH WILL ENABLE THE WEARER TO SOAR LEISURELY ALOFT AT MEDIUM SPEEDS.

THE MIRACLE OF JET-PROPELLED ROCKETS WILL MAKE POSSIBLE CHEAP TRANSPORTATION OF FREIGHT. PILOTS WILL BE ABLE TO BLAST OFF FROM ROCKET-PORTS OF THE FUTURE TO ROAR ACROSS THE OCEAN AT A METEORIC SPEED OF 1500 MILES AN HOUR. INHABITANTS OF DESERT REGIONS WILL BE ABLE TO RECEIVE FRUITS PLUCKED FROM FARMS ONLY A FEW HOURS PREVIOUSLY.

Video camera on windscreen detects traffic lights and moving traffic

Rotating sensor on roof generates 3D map of surroundings

Radar sensors - three at the front and one at the back - help determine position

Two people in car - driver to take over in an emergency, and engineer to monitor software

GOOGLE IMAGE

"At the heart of the technology is a Google-made topographical map that gives the car a sense of what it should expect. The cars depend on this prebuilt map, which is why their urban excursions are limited to Mountain View for now..."

- Seth Rosenblatt (@sethr) of cnet.com



Cruise

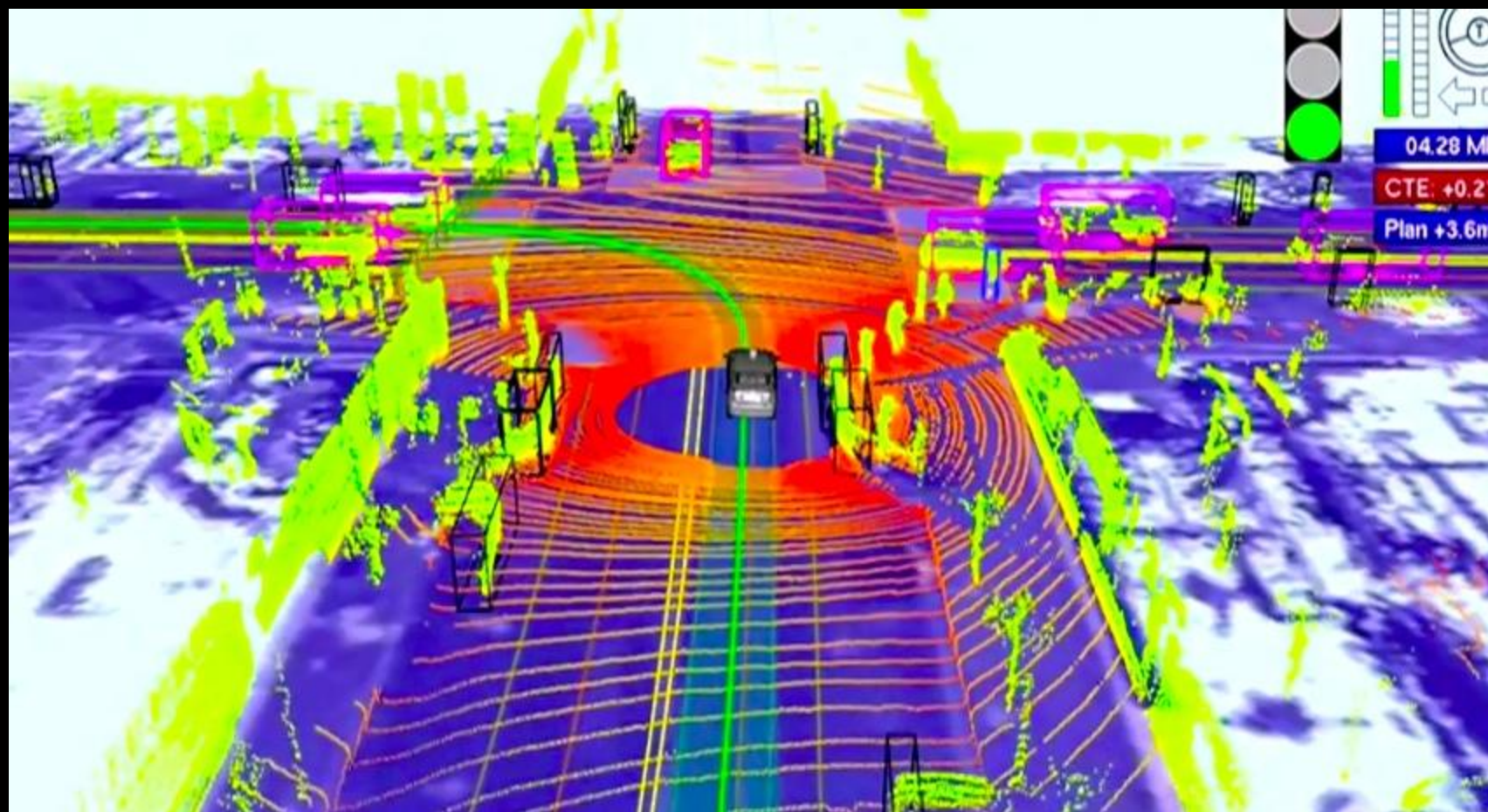
35 MPH

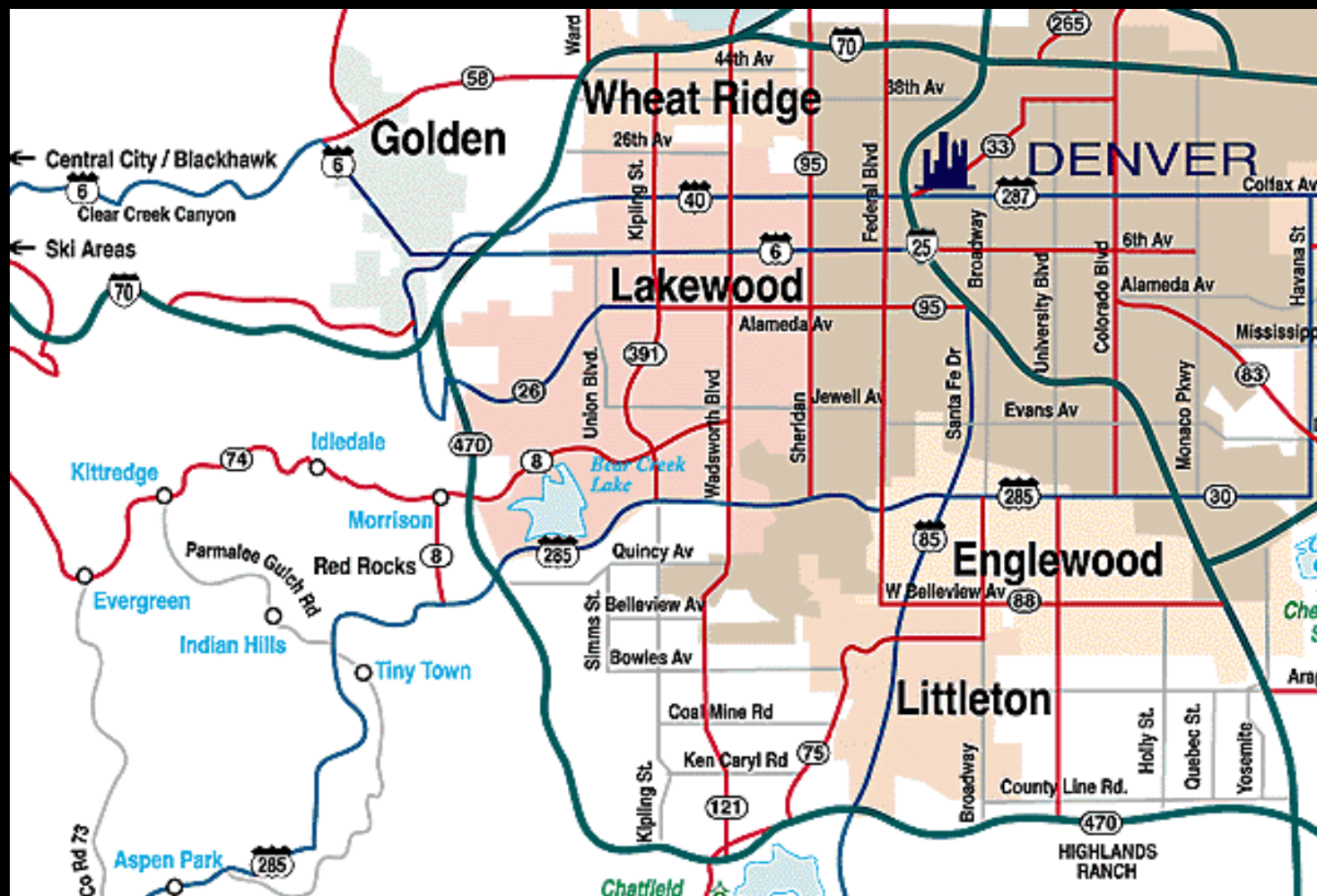


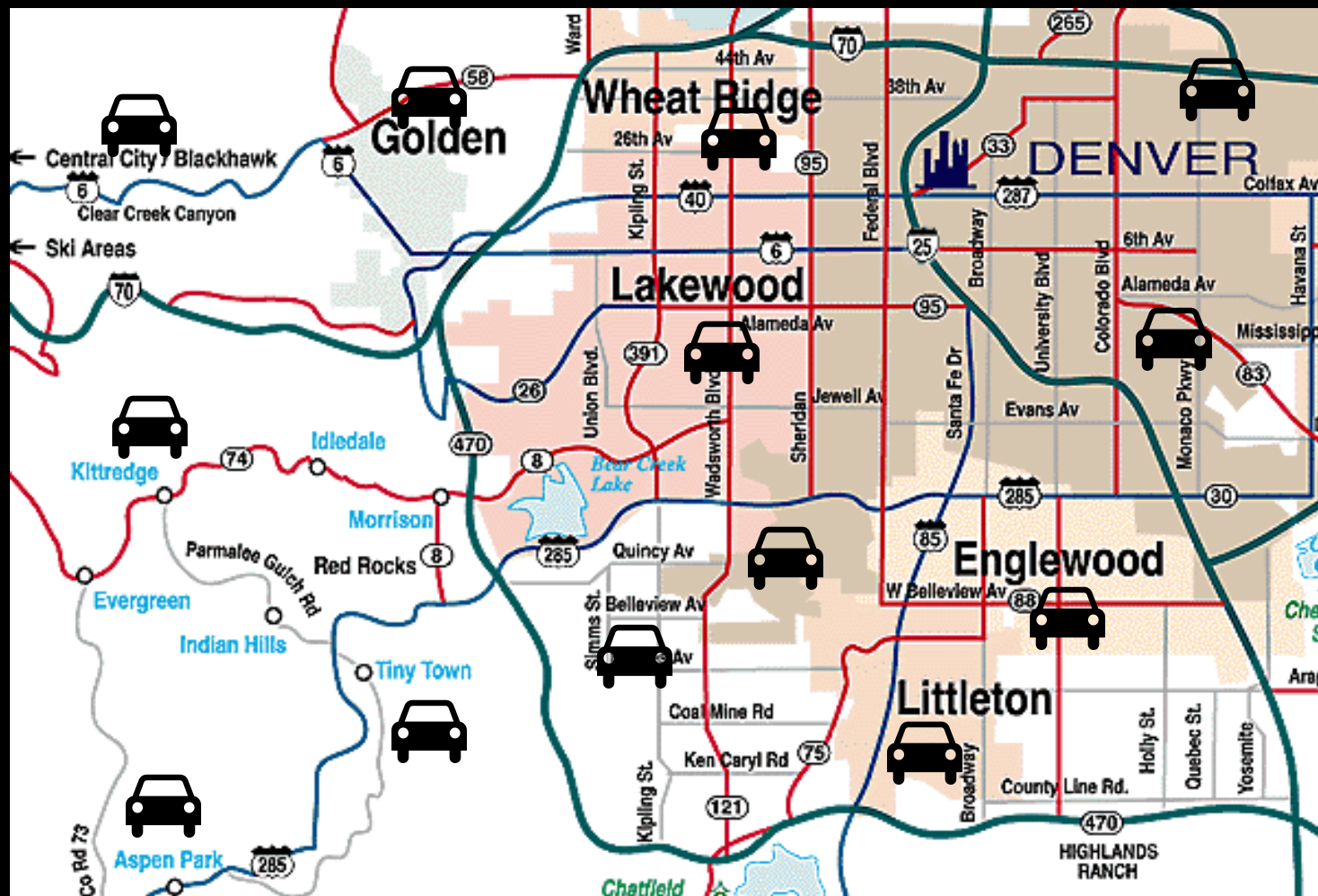
WORKERS ON
ROAD
SLOW DOWN

RN55 B&M

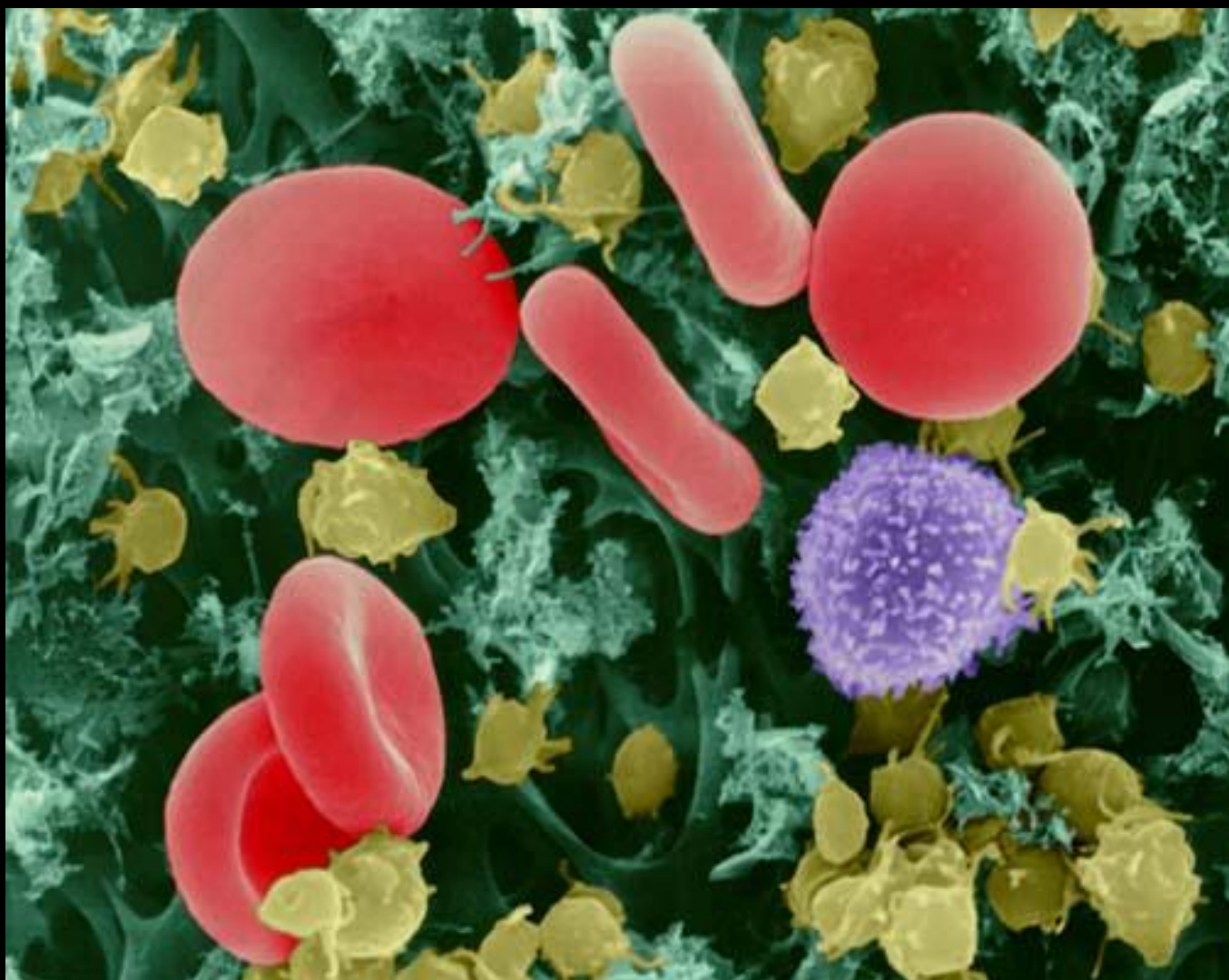
MOTO













CAROLI LINNÆI

S: RIGIÆ M: TIS SVETIÆ ARCHIATRI; MEDIC. & BOTAN.
PROFESS. UPSAL; EQUITIS AUR. DE STELLA POLARI;
NEC NON ACAD. IMPER. MONSPÆL. BEROL. TOLOS.
UPSAL. STOCKH. SOC. & PARIS. CORESP.

SPECIES
PLANTARUM,

EXHIBENTES

PLANTAS RITE COGNITAS,

AD

GENERA RELATAS,

CUM

DIFFERENTIIS SPECIFICIS,
NOMINIBUS TRIVIALIBUS,
SYNONYMIS SELECTIS,
LOCIS NATALIBUS,

SECUNDUM

SYSTEMA SEXUALE

DIGESTAS.

TOMUS I.

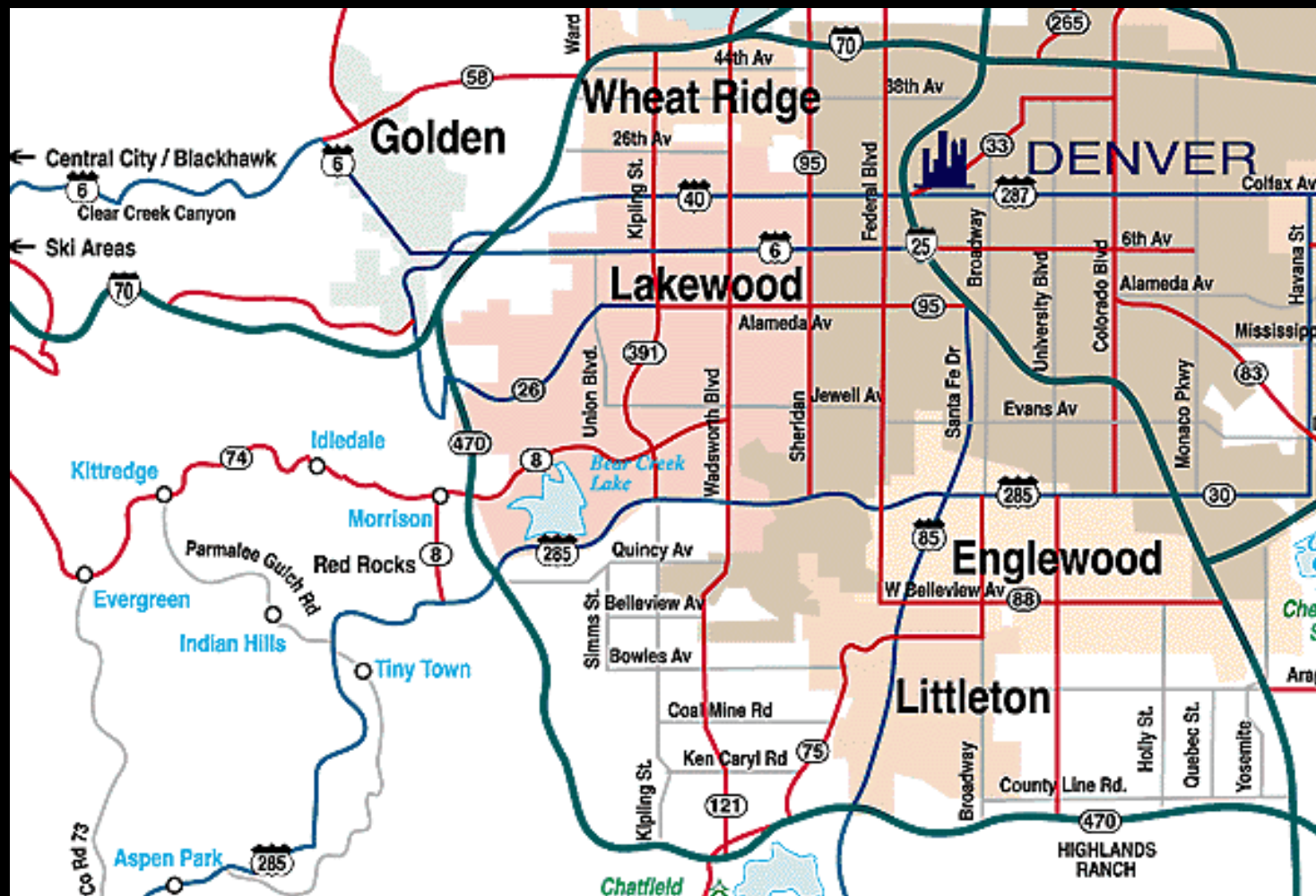
Cum Privilegio S. R. M: Tis Suecicæ & S. R. M: Tis Polonicæ ac Electoris Saxon.

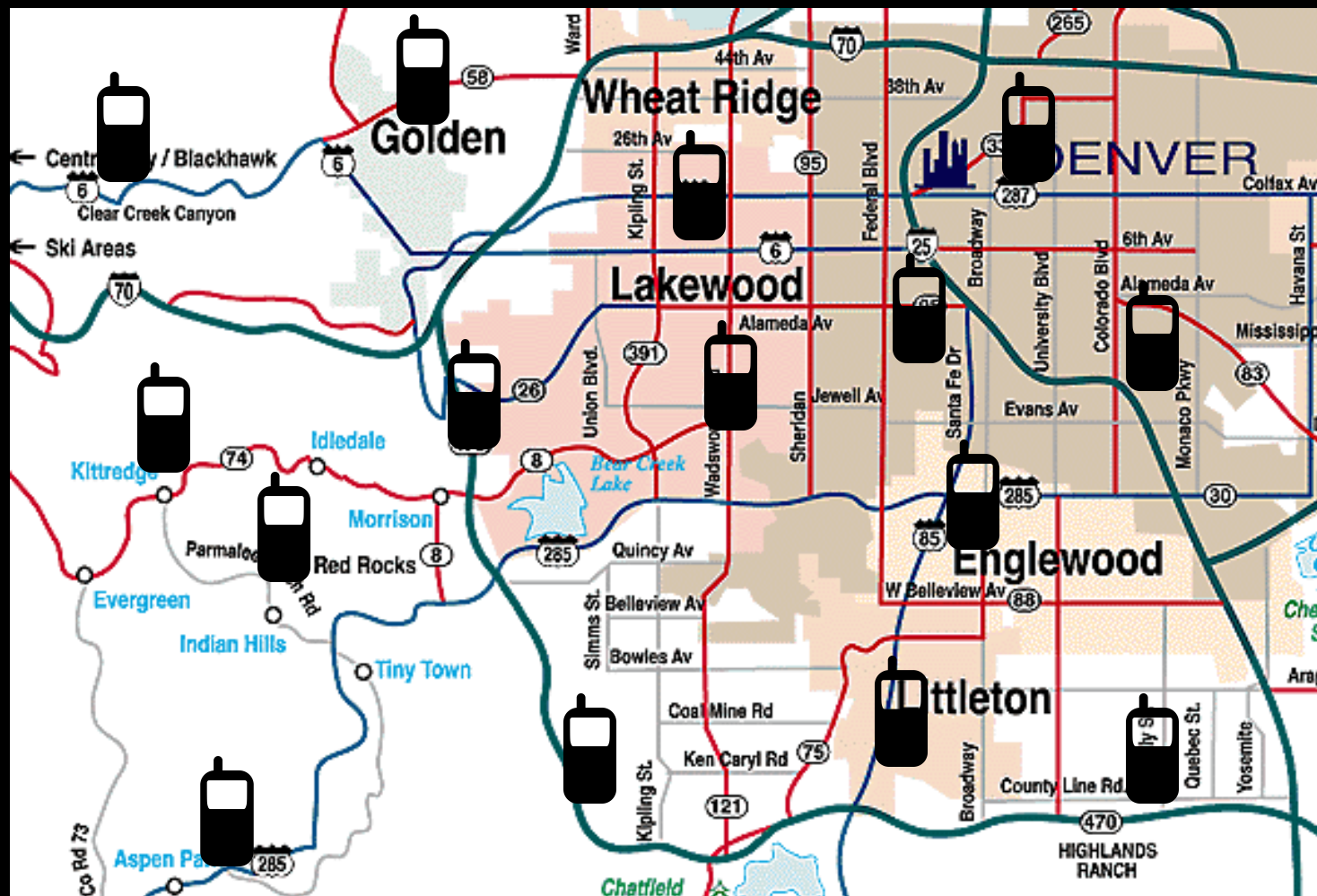
HOLMIÆ,
IMPENSIS LAURENTII SALVII.

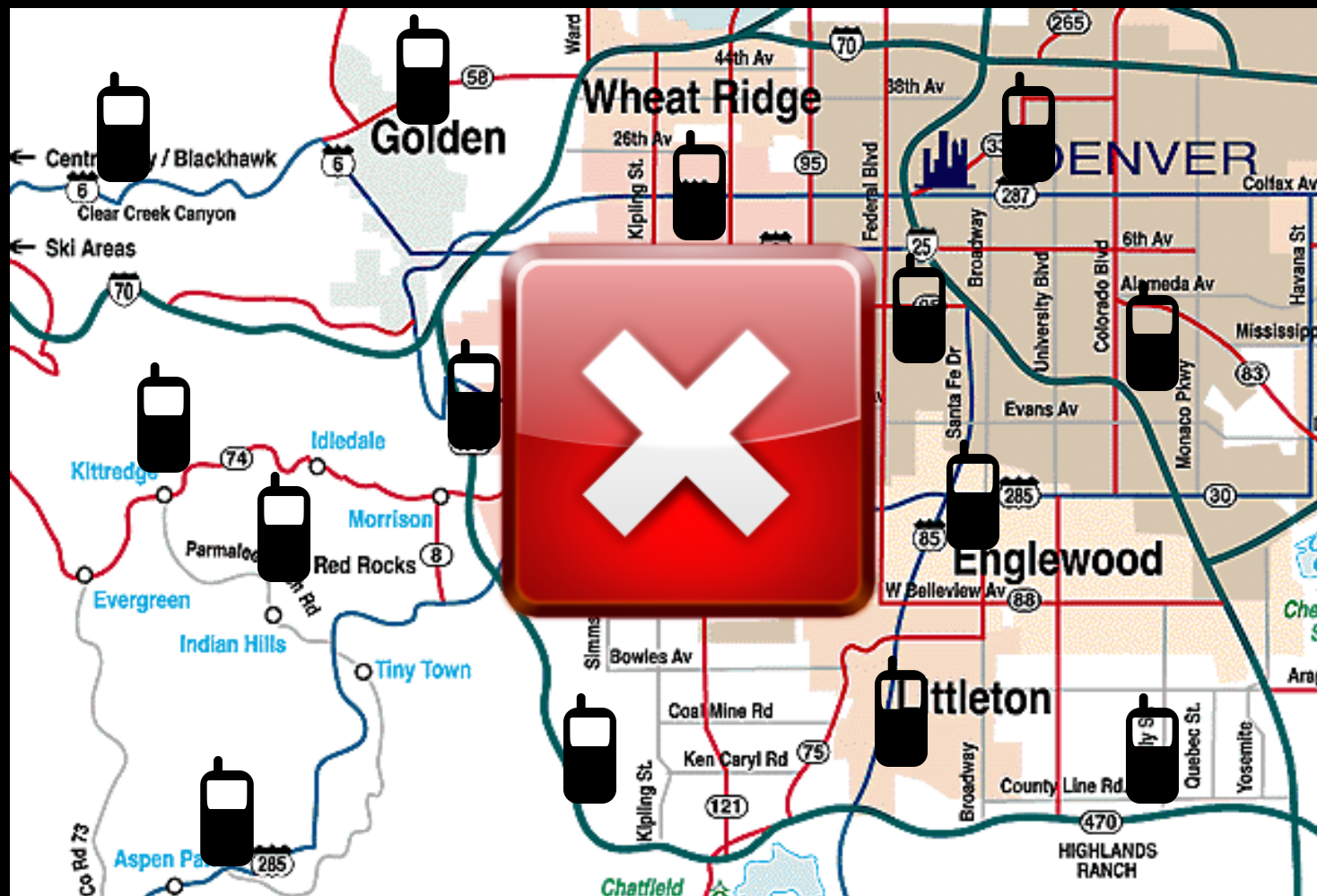
1753.

C. Appelgren



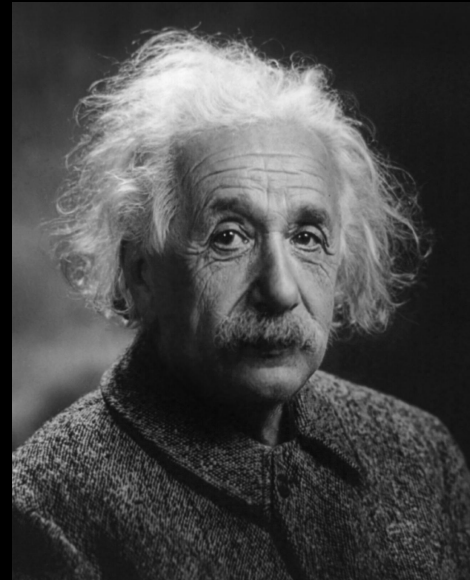






"Insanity: doing the same thing over and over again and expecting different results."

- Albert Einstein.




```
1 // do some cool stuff
2 participant
3   .attend(event)
4   .setNotifications('silent')
5   .getSocNet('twitter')
6   .postStatus('Joining '+event.name)
7   .follow(event.getSocId('twitter'));
8
```

Main Event Loop

```
ProcessWindowEvents ( WindowEvent ) {  
    switch ( WindowEvent ) {  
        case ButtonPress:  
            UserAction();  
  
        case ButtonRelease:  
            UserAction();  
  
        case MouseMotion:  
            if( NULL == UserHandle() )  
                RotateScene();  
            else  
                UserAction();  
    }  
}
```


webserver.js

```
1 var express = require('../node_modules/express'),
2   redis = require('../node_modules/socket.io/node_modules/redis'),
3   // io = require('../node_modules/socket.io').listen(app),
4   fs = require('fs');
5
6 var app = express.createServer();
7 app.use(express.bodyParser());
8
9 // var cache = redis.createClient(6379, "127.0.0.1");
10 var cache = redis.createClient(7010, "192.168.100.18");
11
12 var port = 8888;
13
14 // get html page ok
15 app.get('/*', function (req, res) {
16   req.setMaxListeners(0);
17   res.sendFile(__dirname + '/html/' + req.params[0]);
18 });
19
20 // get js page ok
21 app.get('/js/*', function (req, res){
22   res.sendFile(__dirname + '/html/js/' + req.params[0]);
23 });
24
25 // get image ok
26 app.get('/img/*', function (req, res){
27   res.sendFile(__dirname + '/html/img/' + req.params[0]);
28 });
29
30 app.listen(port);
```

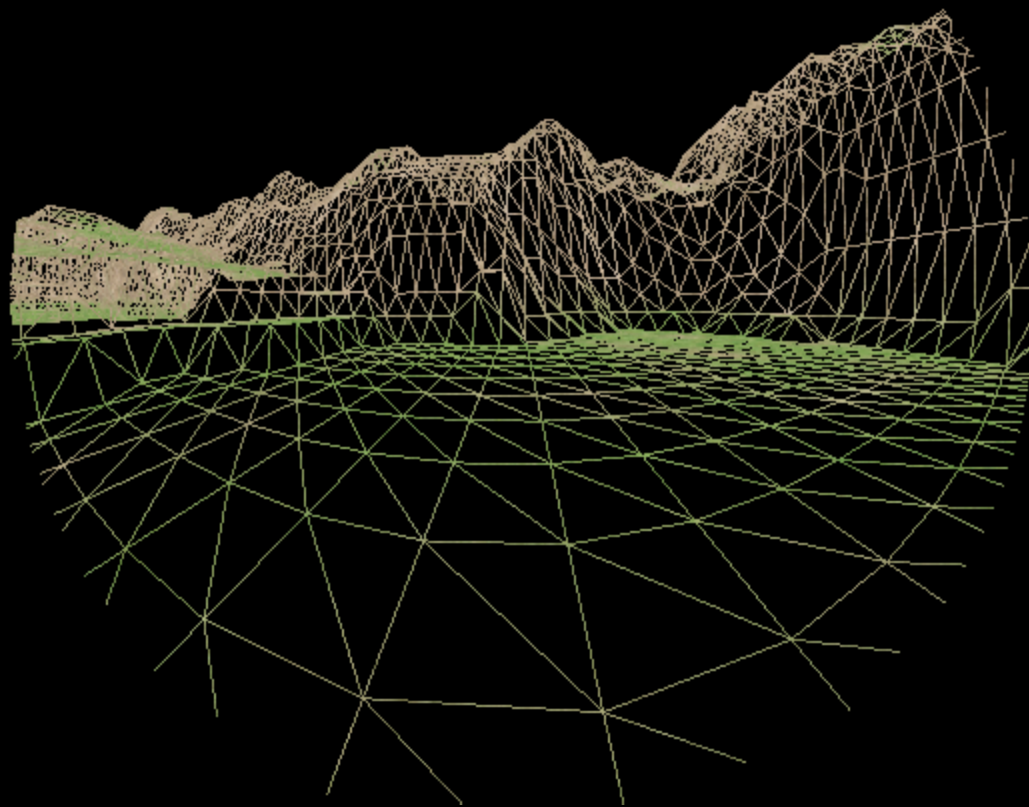
```
int move (Character *character, char *direction) {
    Room cur;
    Exit exit;

    cur = *character->current;
    if (!strcasecmp (direction, "N")) {
        exit = cur.exits [NORTH];
    } else if (!strcasecmp (direction, "S")) {
        exit = cur.exits [SOUTH];
    } else if (!strcasecmp (direction, "E")) {
        exit = cur.exits [EAST];
    } else if (!strcasecmp (direction, "W")) {
        exit = cur.exits [WEST];
    } else if (!strcasecmp (direction, "NE")) {
        exit = cur.exits [NORTHEAST];
    } else if (!strcasecmp (direction, "NW")) {
        exit = cur.exits [NORTHWEST];
    } else if (!strcasecmp (direction, "SW")) {
        exit = cur.exits [SOUTHWEST];
    } else {
        exit = cur.exits [SOUTHEAST]; //SE
    }
    if (exit.room == NULL) {
        printf ("%s\n", exit.noGo);
    } else if (exit.locked) {
        if (locateChar (character, exit.key->checkName) >= 0) {
            printf ("(Unlock door first)");
        } else {
            printf ("%s\n", exit.noGo);
        }
    } else {
        character->current = exit.room;
        printf ("%s\n", exit.room->name);
        look (character);
    }
    return 0;
}
```



```
example-code/Maze/the-b... x
← → ↻ 🏠 📄 GitHub, Inc. [US] https://github.com/RESTful-Web-APIs/example-code/blob/master/Maze/the-bot/the-bo 🔍 ☆ 🍌 🌈 🛠️ 🗨️ 📧 📱 🌐 ☰
196 // check for entrance link
197 if(m.start===false) {
198   href = findLink(links, 'start');
199   if(href) {
200     flag = true;
201     m.start = true;
202     m.facing = 'north';
203     console.log(m.moves++ + ': I\'m starting the ' + room + '. My first move is:' + href)
204   }
205   // ok, see if we can find a maze link
206   if(href===undefined) {
207     href = findLink(links, 'maze');
208   }
209   // well, is there a collection link?
210   if(href===undefined) {
211     href = findLink(links, 'collection');
212   }
213   // ok, i give up!
214   if(href===undefined) {
215     console.log(m.quitter);
216     return;
217   }
218 }
219
220 // ok, try to move to new room
221 if(href===undefined) {
222   choices = m.rules[m.facing];
223   for(i=0, x=choices.length; i<x; i++) {
224     href = findLink(links, choices[i]);
225     if(href) {
226       flag = true;
227       m.facing = choices[i];
228       console.log(m.moves++ + ': I\'m in the ' + room + '. My next move is:' + href);
229       break;
230     }
231   }
232 }
233 makeRequest('GET',href);
234 });
235 });
236
```







APPALACHIAN TRAIL

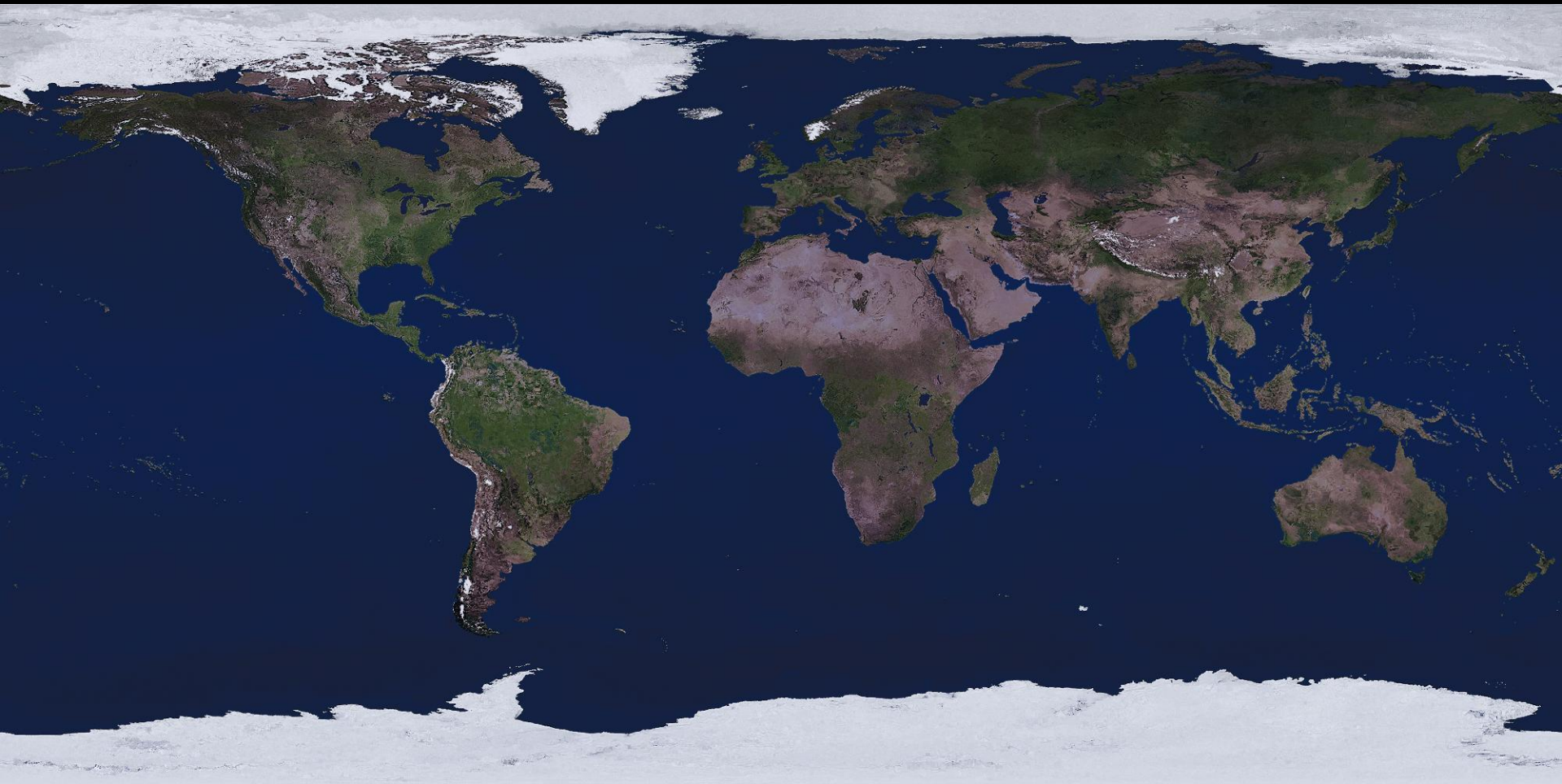
CAUTION

THERE ARE NO PLACES TO OBTAIN SUPPLIES OR GET HELP UNTIL
ABOL BRIDGE 100 MILES NORTH. DO NOT ATTEMPT THIS SECTION
UNLESS YOU HAVE A MINIMUM OF 10 DAYS SUPPLIES AND ARE FULLY
EQUIPPED. THIS IS THE LONGEST WILDERNESS SECTION OF THE ENTIRE
A.T. AND ITS DIFFICULTY SHOULD NOT BE UNDERESTIMATED.

GOOD HIKING!

M.A.T.C.







LEGEND to MAP SYMBOLS

COUNTRY

Feature Town



desert/wasteland



grassland



swamp



hills



mountains



cave



political border



road



river



town/village



cities



tower/fortress



castle



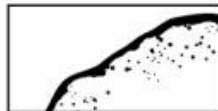
country capital



windmill



forest



lake



reef



canyon

No Map
Available

Hypermedia Factors

		CL		
		CR	CU	CM
LE	LO	LT	LN	LI

SVG

Hypermedia Factors

		CL		
		CR	CU	CM
LE	LO	LT	LN	LI

Atom

Hypermedia Factors

		CL		
		CR	CU	CM
LE	LO	LT	LN	LI

HTML

```

{
  "status": "OK",
  "results": [ {
    "types": [ "route" ],
    "formatted_address": "7th Main Rd, Koramangala, Bengaluru, Karnataka 560034, India",
    "address_components": [ {
      "long_name": "7th Main Rd",
      "short_name": "7th Main Rd",
      "types": [ "route" ]
    }, {
      "long_name": "Koramangala",
      "short_name": "Koramangala",
      "types": [ "sublocality", "political" ]
    }, {
      "long_name": "Bengaluru",
      "short_name": "Bengaluru",
      "types": [ "locality", "political" ]
    }, {
      "long_name": "Bengaluru",
      "short_name": "Bengaluru",
      "types": [ "administrative_area_level_2", "political" ]
    }, {
      "long_name": "Karnataka",
      "short_name": "Karnataka",
      "types": [ "administrative_area_level_1", "political" ]
    }, {
      "long_name": "India",
      "short_name": "IN",
      "types": [ "country", "political" ]
    }, {
      "long_name": "560034",
      "short_name": "560034",
      "types": [ "postal_code" ]
    }
  ],
  "geometry": {
    "location": { "lat": 12.9259085, "lng": 77.6334715 },
    "location_type": "GEOMETRIC_CENTER",
    "viewport": {
      "southwest": { "lat": 12.9227118, "lng": 77.6301852 },
      "northeast": { "lat": 12.9290071, "lng": 77.6364805 }
    }
  },
  "bounds": {
    "southwest": {
      "lat": 12.9247615,
      "lng": 77.6330486
    },
    "northeast": {
      "lat": 12.9269574,
      "lng": 77.6336171
    }
  }
}

```


Route Instruction

From : CP Ramaswamy Road, Trustpakkam, Mandaveli, Chennai, Tamil Nadu 600018, India

To : Adyar Gate Club Road, Nandanam, Chennai, Tamil Nadu 600028, India

Via : St Marys Rd

Distance : 0.618 Mi (0.994 Km)

Duration : 3 mins

1. Head **south** on **CP Ramaswamy Rd** toward **St Marys Rd**

2. Take the 1st **right** onto **St Marys Rd**
Pass by Petrol Pump - Balakrishna Automobiles (on the right)

3. Turn **left** at Vinayagar Temple onto **TTK Road**

4. At Inseoul Korean Restaurant, continue onto **Adyar Gate Club Rd**

Show Route

Close

Distance : 0.62 Mi (0.99 Km)

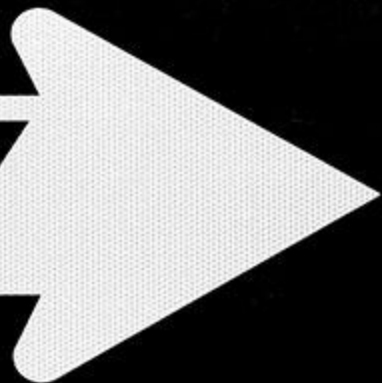
```

9      "apis": [
10        {
11          "path": "/products/",
12          "operations": [
13            {
14              "method": "GET",
15              "summary": "Pulls a listing of products",
16              "notes": "Returns a list of products, allowing you to filter by k",
17              "nickname": "getJobs",
18              "type": "products",
19              "parameters": [
20                {
21                  "name": "query",
22                  "description": "a text query to search across products",
23                  "required": false,
24                  "allowMultiple": false,
25                  "dataType": "string",
26                  "paramType": "query"
27                }
28              ],
29              "produces": [
30                "application/json"
31              ],
32              "responseMessages": [
33                {
34                  "code": 404,
35                  "message": "No Jobs To Return"
36                }
37              ]
38            }
39          ]
40        },
41        {
42          "path": "/products/{id}",

```

```
1 <alps version="1.0">
2   <link rel="help" href="http://example.org/documentation/products.html" />
3   <doc>
4     This is a prototype product API.
5   </doc>
6
7   <!-- transitions -->
8   <descriptor id="item" type="safe" rt="#product">
9     <doc>Retrieve A Single Product</doc>
10  </descriptor>
11
12  <descriptor id="collection" type="safe" rt="#product">
13    <doc>Provides access to all products</doc>
14  </descriptor>
15
16  <descriptor id="search" type="safe" rt="#product">
17    <doc>Provides access to all products</doc>
18    <descriptor href="#id" />
19  </descriptor>
20
21  <descriptor id="edit" type="idempotent" rt="#product">
22    <doc>Updates A Product</doc>
23    <descriptor href="#product" />
24  </descriptor>
25
26  <descriptor id="create" type="unsafe" rt="#product">
27    <doc>Allows the creation of a new product</doc>
28    <descriptor href="#product" />
29  </descriptor>
30
31  <descriptor id="delete" type="idempotent">
32    <doc>Delete A Product </doc>
33  </descriptor>
34
35  <!-- product -->
36  <descriptor id="product" type="semantic">
37    <descriptor id="id" />
38    <descriptor id="name" />
39    <descriptor id="description" />
40    <descriptor id="url" />
41    <descriptor id="thumbnailUrl" />
42    <descriptor id="keywords" />
43    <descriptor id="brand" />
44    <descriptor id="color" />
45    <descriptor id="itemCondition" />
46    <descriptor id="manufacturer" />
```


ONE WAY







Division of Maps
Library of Congress

OLD'S VIEW OF THE CITY OF
DENVER
COLORADO







Mapping the API Landscape

<http://g.mamund.com/gluecon2014-talk>

Mike Amundsen
API Academy
@mamund