MULTI-TRACKING SYSTEM

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ABSTRACT

It is wonderful to recognize how easy thoughts can give a whole new measurement to the tracking and navigation industry and smart car tracking gadget is used for monitoring the motors. You can optimize driver routes, shop petrol or gasoline and time, reduce theft and manage the car capabilities. Many a times it isn't required to track your vehicle or target globally. In majority of instances tracking is greater limited to nearby purposes simplest, together with monitoring movement of car within metropolis, tracking the uncooked materials inside business estate or to know the existing position of your daughter or son inside town. However alas within the pursuit of making matters complex this simple idea is forgotten. This simple but effective idea bureaucracy the idea of this modern challenge. All this coupled with a very low cost, a sturdy design and wonderful marketplace ability makes this model even extra attractive.

Keyword:-*gps tracking, gps, multi-tracking*

1. Introduction

The roots of automobile monitoring structures lie in transport industry. They required some sort of gadget to determine where each automobile became at any given time and for a way long it travelled. To start with car tracking structures developed for fleet control were passive monitoring machine. In passive tracking device a hardware tool installed inside the vehicle save gps vicinity, pace, heading and a trigger occasion inclusive of key on/off, door open/closed. While automobile returns to a specific area tool is eliminated and records downloaded to pc. Real time tracking system was required which can transmit the gathered statistics approximately the vehicle after ordinary durations or at least may want to transmit the records while required via tracking station. Active systems had been advanced that transmit vehicle's facts in real time thru mobile or satellite tv for pc networks to a faraway laptop or statistics centre. Many vehicle systems which might be in use now days are some form of automatic vehicle region (avl). It's miles a concept for figuring out the geographic area of a automobile and transmitting this facts to a remotely placed server. The place is determined the use of gps and transmission mechanism could be a satellite tv for pc, terrestrial radio mobile connection from the car to a radio receiver, satellite or close by mobile tower. After capture, the monitoring facts may be transmitted the use of any desire of telemetry or wi-fi communications systems. Gsm is the most commonplace used carrier for this purpose. In this undertaking a microcontroller is used for interfacing to diverse hardware peripherals. The cutting-edge design is an embedded utility, so as to continuously screen a shifting car and record the repute of the vehicle on demand. For doing so a microcontroller is interfaced serially to a gsm modem and gps receiver. A gsm modem is used to ship the location (latitude and longitude) of the automobile from a faraway location. The gps modem will continuously deliver the data i.E. The range and longitude indicating the placement of the vehicle.

2.DESIGN ISSUES

2.1. Energy supply

The characteristic of regulated power deliver is to supply a voltage or present day, to a circuit that is operated with sure power supply limits. Regulated power deliver is commonly an embedded circuit and the output from the regulated strength supply is unidirectional, and is constantly dc.

2.1.1. Regulator ic (7805)

Regulator ic is a three pin ic that is used as a voltage regulator. This ic is used to transform unregulated dc modern-day into regulated dc contemporary. Regulator ic used on this machine is 7805. Used to alter and deliver voltage of 5v.

2.1.2. Power adapters

The ac adapter, ac/dc adapter or ac/dc converter is a sort of external strength deliver, regularly enclosed in a case much like an ac plug. Different names consist of plug %, plug-in adapter, adapter block, domestic mains adapter, line strength adapter, or strength adapter. Ac adapters are normally used with electric devices and require electricity to derive the required voltage and electricity from mains strength.

3. METHODOLOGY

To discover the area of the automobile, the proprietor needs to send a message to the automobile tracking machine. While the consumer request is despatched to the variety at the modem, the device sends a go back respond automatically to that cellular which imply the position of the automobile with range and longitude.The software program can produce all of the reports in short time.The method includes modeling of tool and beneath it is defined in steps.

Step 1: Restoration the transmitter of automobile monitoring machine within the automobile. Start the device using the push pull button for on-off tool.

Step 2: On the other give up connect the receiver to a pc the usage of a rs232 cable and start the receiver using the push pull button for on-off tool at the side of the pc.

Step 3: A gsm modem inside the transmitter sends the location of the automobile from a far flung location to the requesting cellular. The proprietor will get a message in form of range and longitude.

Step 4: The records is also transferred to the computer for output the usage of cable rs232.

A.   A scanned map of a city is set as background on display.

B.   Latitude and longitude of the goal car is obtained from gps receiver.

C.   With the help of rf transmitter the obtained statistics will bedespatched to a pc.

D.   A software application to plan a factor (small circle) as automobile on scanned map of town will trace the exact location of the car.
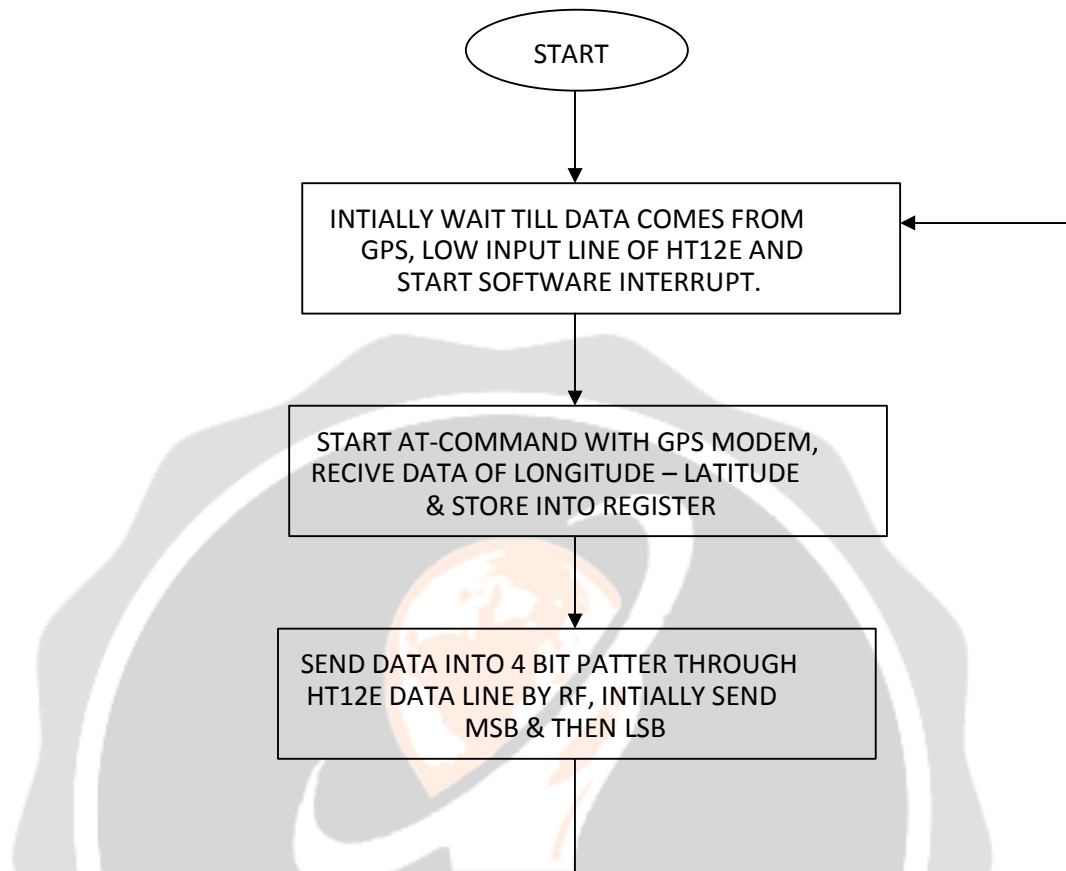
4.IMPLEMENTATION

Figure. 1. Flowchart for Transmitter

```
                          ┌──────────┐
                          │  START   │
                          └────┬─────┘
                               │
                  ┌────────────▼────────────┐
          ┌──────►│   WAIT TILL DATA         │◄───────┐
          │       │   RECEIVE                │        │
          │       └────────────┬────────────┘        │
          │                    │                      │
          │              ◇─────▼─────◇      ┌──────┐   │
          │             IS DATA       ─────►│ NO   │──┘
          │             COMING FFH?
          │              ◇─────┬─────◇
          │        ┌──────┐    │
          │        │ YES  │    │
          │        └──────┘    │
          │       ┌────────────▼────────────┐
          │       │  STORE MSB AND WAIT      │◄───────┐
          │       │  FOR LSB DATA            │        │
          │       └────────────┬────────────┘        │
          │                    │                      │
          │              ◇─────▼─────◇      ┌──────┐   │
          │             IS DATA       ─────►│ NO   │──┘
          │             COMING FFH?
          │              ◇─────┬─────◇
          │     ┌──────┐       │
          │     │ YES  │       │
          │     └──────┘       │
          │       ┌────────────▼────────────┐
          │       │  ADD BOTH DATA TO        │
          │       │  GET ORGIANL DATA        │
          │       └────────────┬────────────┘
          │                    │
          │       ┌────────────▼────────────┐
          └◄──────│  SEND DATA SERIALLY      │
                  │  TO THE PC               │
                  └──────────────────────────┘
```
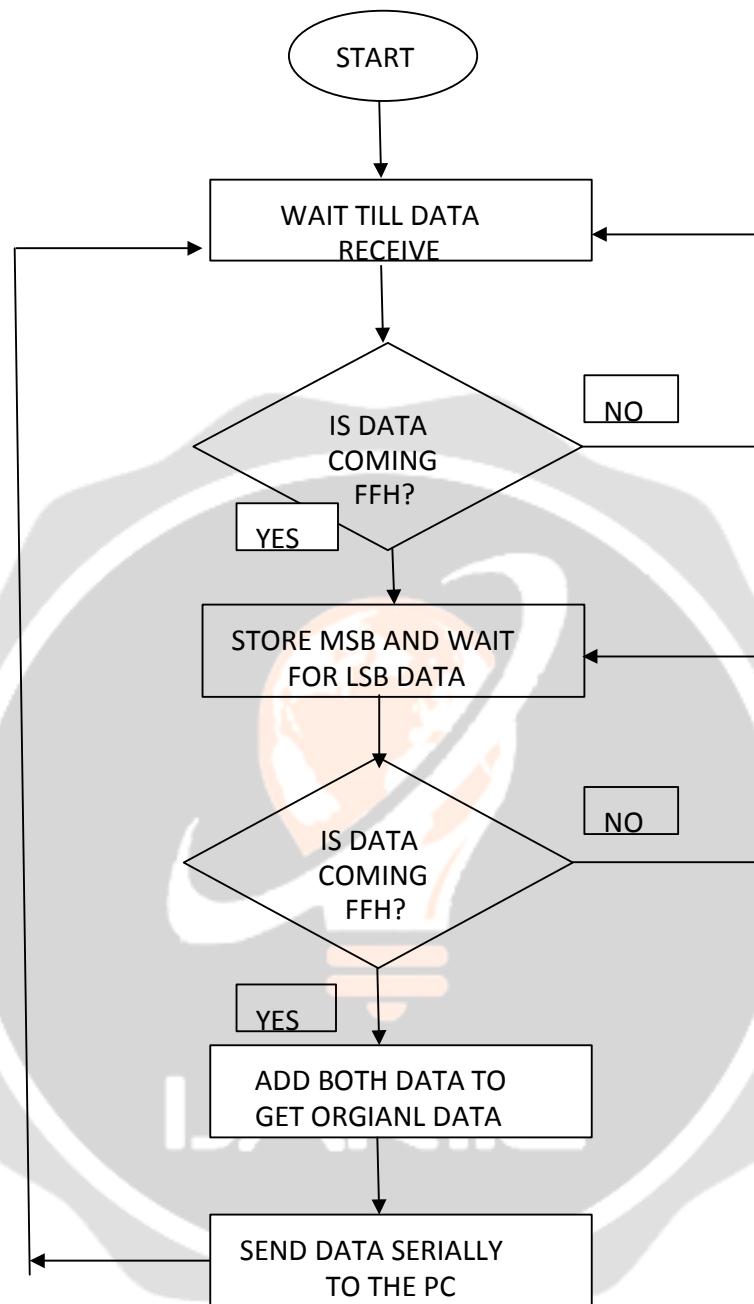
Figure. 2. Flowchart for Receiver

5. Experiments and Results

The vehicles are prepared with communique gadgets to trade information a number of the organization, they could acquire theGps function of different vehicles by communique, and that they use the imaginative and prescient gadget to calculate the distance among twoConsecutive automobiles. This distance is used to localize our cars and to locate its positions compared to other cars.Our gadget use a translation from the image coordinate to the 2-d global coordinate. When the coordinate of the vehicleWithin the international device is calculated, we can music them the use of the particle filters factor. We are able to plot the trajectoryOf every car the use of the particle filters

component and having as an entry the gpsdatas of each car, whileAvailable truly. Whilst there may be an outage of the gps system, we use the vision machine to get the space and toDiscover the vehicle detected in the 2-d coordinate using the 2-d coordinate of the car detecting, then we are able to trackThe second vehicle using the particle filter out component. We respect these conditions of communication : the geared upMotors can't speak whilst the distance among them is higher than the maximum communication distance(350 meters), so we remember that the street protection is ensured in a radius quarter of 350 m. We do not forget that theSensors, the gps records and the communique structures can be affected with delays or can be briefly unavailable.Automobile statistics is transmitted through a can bus. All sensor informations are synchronized using the rtmaps systemWhich is a actual-time framework for prototyping multi-sensor automotive programs [9]. This system turned into developed In the laboratory of ensmp and is presently set up within the prototype car. That allows you to examine the overall performanceOf our monitoring machine, checks were conducted in actual international conditions. The use of rtmaps, we recorded one-of-a-kind situations(platooning, vehicle insertion, car in a crossroad, ...) in urban scenes at distinct times of day. We also installedThe gadget on our host automobile and conducted actual-time checks. The experimentation became realised on one-of-a-kind eventualitiesAnd examined within the parking of the inriarocquencourt in france.

6. Coding

```
public class Tracking extends MapActivity implements LocationListener {

LocationManagerlocman;

LocationListenerloclis;

Location Location;

private MapView map;

List<GeoPoint>geoPointsArray = new ArrayList<GeoPoint>();

private MapController controller;

String provider = LocationManager.GPS_PROVIDER;

double lat;

double lon;

@Override

public void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.map);

initMapView();

initMyLocation();

locman = (LocationManager) getSystemService(Context.LOCATION_SERVICE);

  // locman.requestLocationUpdates(provider,60000, 100,loclis);
```

```
   // Location = locman.getLastKnownLocation(provider);


}


/** Find and initialize the map view. */
private void initMapView() {

   map = (MapView) findViewById(R.id.map);

   controller = map.getController();

map.setSatellite(false);

map.setBuiltInZoomControls(true);

}


/** Find Current Position on Map. */
private void initMyLocation() {

   final MyLocationOverlay overlay = new MyLocationOverlay(this, map);

overlay.enableMyLocation();

overlay.enableCompass(); // does not work in emulator

overlay.runOnFirstFix(new Runnable() {

     public void run() {

        // Zoom in to current location

controller.setZoom(24);

controller.animateTo(overlay.getMyLocation());

     }

   });

map.getOverlays().add(overlay);

}


@Override
public void onLocationChanged(Location location) {

   if (Location != null) {
```

```
lat = Location.getLatitude();

lon = Location.getLongitude();

GeoPointNew_geopoint = new GeoPoint((int) (lat * 1e6),

        (int) (lon * 1e6));

controller.animateTo(New_geopoint);


    }


}


class MyOverlay extends Overlay {

    public MyOverlay() {

    }


    public void draw(Canvas canvas, MapViewmapv, boolean shadow) {

super.draw(canvas, mapv, shadow);


    Projection projection = map.getProjection();

    Path p = new Path();

    for (inti = 0; i<geoPointsArray.size(); i++) {

        if (i == geoPointsArray.size() - 1) {

            break;

        }

        Point from = new Point();

        Point to = new Point();

projection.toPixels(geoPointsArray.get(i), from);

projection.toPixels(geoPointsArray.get(i + 1), to);

p.moveTo(from.x, from.y);

p.lineTo(to.x, to.y);

    }
```

```
    Paint mPaint = new Paint();

mPaint.setStyle(Style.STROKE);

mPaint.setColor(0xFFFF0000);

mPaint.setAntiAlias(true);

canvas.drawPath(p, mPaint);

super.draw(canvas, map, shadow);

    }

}


@Override

public void onProviderDisabled(String provider) {

    // TODO Auto-generated method stub


}


@Override

public void onProviderEnabled(String provider) {

    // TODO Auto-generated method stub


}


@Override

public void onStatusChanged(String provider, int status, Bundle extras) {

    // TODO Auto-generated method stub


}


@Override

protected booleanisRouteDisplayed() {

    // TODO Auto-generated method stub
```

```
    return false;

}

}
```

7. Conclusion and future work

Car monitoring machine is used generally for enhancing overall productiveness which gives higher return on your investments. For coping with larger job masses within a time course planning is crucial. Each for personal as well as for commercial enterprise motive, car tracking improves protection and safety, communique medium, performance tracking and it'll growth productiveness. So in future it'll play a primary function in our everyday dwelling. The car tracking device is a the tracking device that is usually operated through gps is attached with the vehicle. Satellite indicators is first acquired by it after which it determines its position co-ordinates with latitude and longitude. These coordinates are generally found on a computer display screen and by using mapping software we will see the exact position of our automobile. Usually vehicle monitoring technology consumer can access the records of a vehicle based totally on vehicle's position, velocity and distance traveled and duration of each stoppage with a crucial working middle by way of entering the mobile range of consumer via mobile phones or websites the usage of sms or internet. Vehicletracking era is nice for tracking and tracking both industrial and passenger automobile. As worried with private vehicle tracking, it permits recuperating our stolen automobile by using pin pointing that offers the precise location.

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