

V2X-DSRC Cordless Cap Lamp

Patent App No: 2023248110

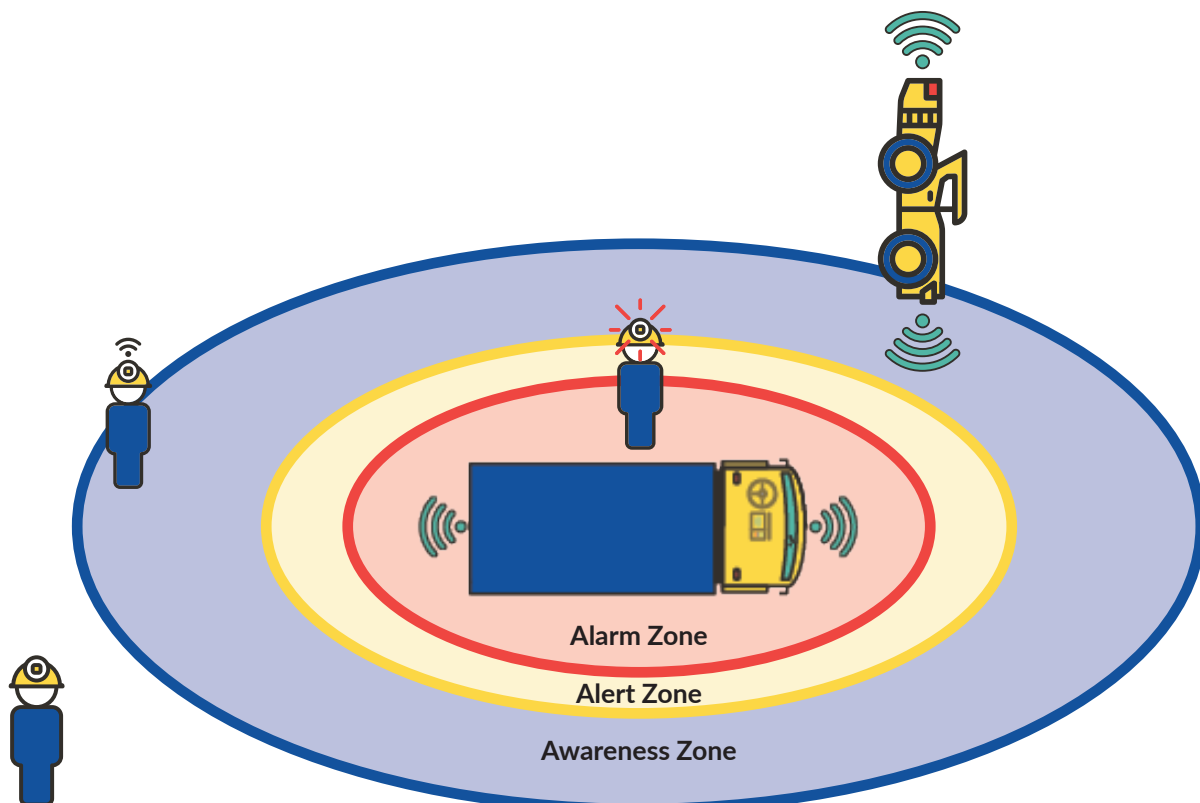
Enabling Safer Working Conditions

Vehicle related accidents are a leading cause of injury for mine sites worldwide. Collision Avoidance Systems (CAS) or Proximity Detection Systems (PDS) can provide critical information/alerts to pedestrians and drivers or enable intervention controls which prevent these incidents occurring. Roobuck supplies both vehicle and personnel CAS components using a variety of high precision technologies such as Ultra Wide Band (UWB) and Dedicated Short Range Communications (DSRC) (802.11p).

Roobuck supplies V2P (Vehicle to Pedestrian) compatible cordless cap lamps so that personnel are detected by vehicles before a collision occurs. The V2X-DSRC Cordless Cap Lamps are 802.11p standard compatible and enable personnel to be detected by Vehicle to Everything (V2X) systems installed on vehicles. The cordless cap lamps are ideal for use in an underground environment as they can be detected up to 30 metres around corners and do not require line of sight with a vehicle to be detected. Moving vehicles can detect personnel wearing DSRC cordless cap lamps and other moving or stationary vehicles. This early warning system prevents accidents, potentially saving lives and preventing downtime.

The collision detection zones are fully configurable, allowing our solution to be customised to meet site specific requirements:

- Blue Zone is Awareness and can be 40-60 m
- Yellow Zone is Alert and can be 20-40 m
- Red Zone is Alarm and can be 0-20 m



Collision Avoidance and Proximity Detection Systems

How Does This Work?

Our cap lamps utilise 802.11p DSRC technology in conjunction with WiFi and BLE to enable integration into comprehensive V2X tracking solutions. The embedded DSRC module implements flashing warning signals to inform the wearer that there are vehicles in their Awareness, Alert, Alarm zones. At the same time the drivers of the vehicles are informed of people in their Awareness, Alert, Alarm zones.

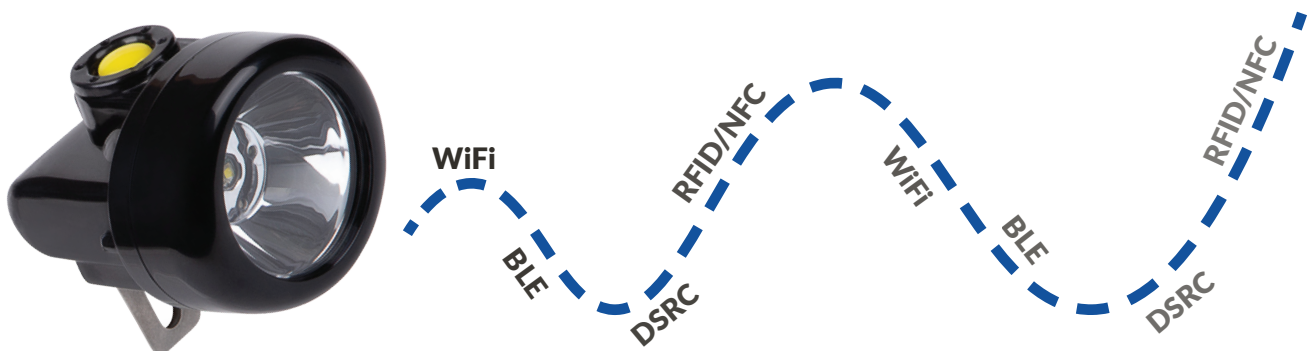
In situations where drivers of vehicles don't have a good view of people and other vehicles in their pathway, the V2X solution significantly reduces the risk of collisions that could result in injuries or damage to assets. The DSRC Cap Lamp Solution includes a configuration, update and maintenance dashboard. Data collected by the V2X solution can be used for:

- centralised reporting of live vehicle and personnel location
- in-vehicle traffic management advice to optimise production workflows
- comprehensive incident analysis, production tracking and centralised co-ordination
- equipment & system health checks, equipment usage, tracking when vehicles are in use
- monitoring current or last known location

The deployed V2X solution includes the Vehicle Operator's Display where:

- Remote Objects are displayed within the relevant zone, giving them the relative distance using zone and direction ahead or behind the vehicle
- Remote Objects are identified as either people or vehicles, allowing for efficient communication
- Audible alerts can be triggered for critical situations and when objects enter the Alarm Zone

As the DSRC cordless cap lamp include WiFi and BLE capabilities, it can be used for other functions including data forwarding, tracking, traffic management, evacuation and alert management.



V2X-DSRC Cordless Cap Lamp

Technology



DSRC 802.11p standard compatible



WiFi 802.11 b/g/n



Bluetooth V4.2, BLE



UHF 860 - 960 MHz RFID can be integrated into tracking, registration & access control systems



13.56 MHz for use with your Kiosk, Digital Tagboard and Inventory solutions



IMU for your movement data collection and personnel safety applications

Cap Lamp



Three operating modes – Main, High-Beam, Auxiliary



Adjustable beam angle to point wherever you look



Lightweight, comfortable and ergonomic



Rugged casing made from GERMAN FRAS material for rough handling & wide ambient temperature range



World's safest and most reliable Panasonic battery



Made from Top Brand, high quality components and parts

Specifications



Running Time
14 h Main Mode



Charging Time
11 h



Weight
165 g



IP Rating - IP67
Submersible in water
up to 1m for 30min

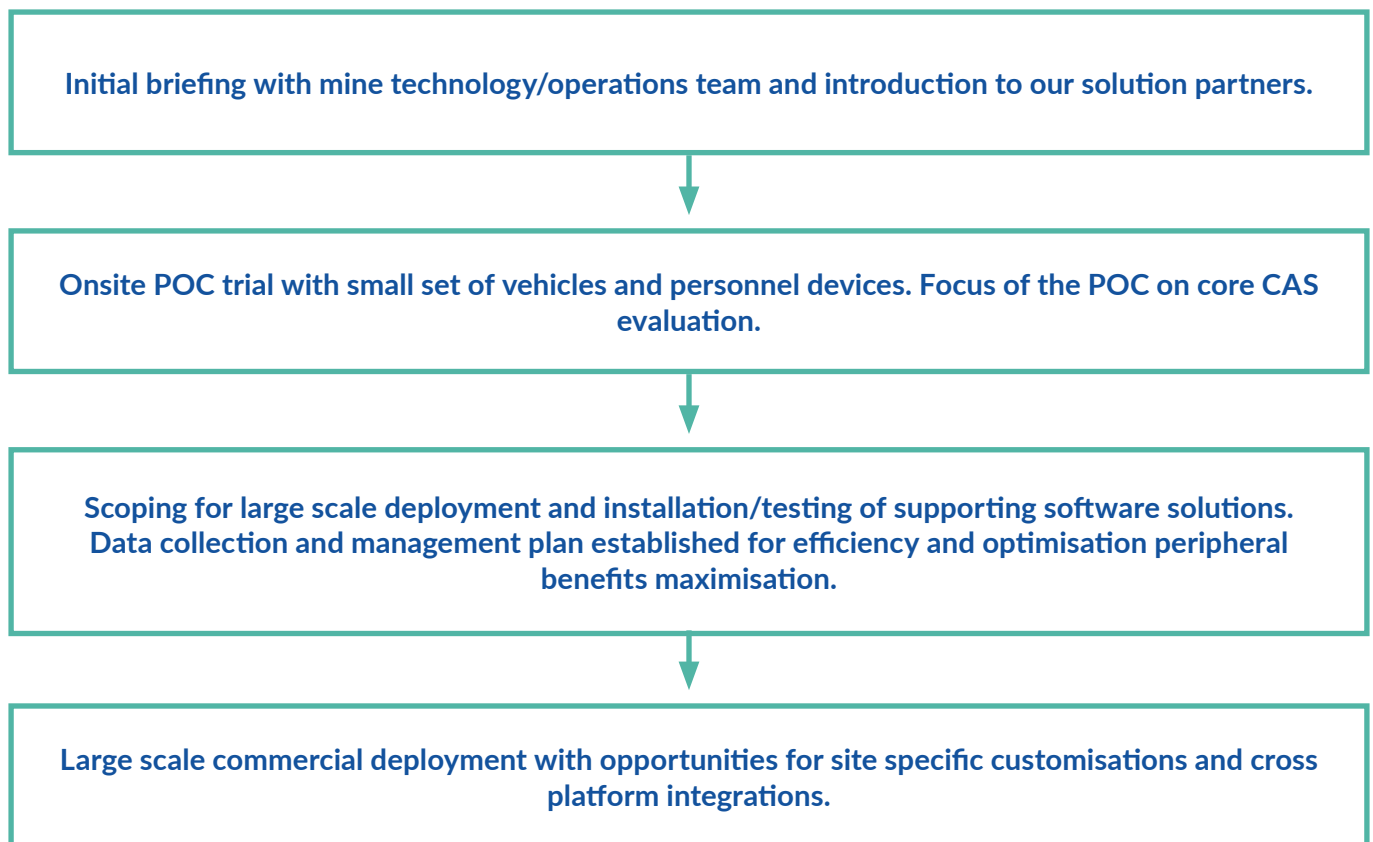
Charging Banks for 8/35/53 Cap Lamps

Collision Avoidance and Proximity Detection Systems

Solution Deployment Roadmap

Below is a visual depiction of the solution deployment process. Additionally, Roobuck would welcome hearing about your site specific requirements/problems to be solved and how we can apply customisation to this solution to meet your safety and optimisation requirements.

Once this is in operation you can add to this solution to enhance your operation efficiencies which will improve productivity and at the same time ensure the safety of your staff.



Accelerate your mine digitalisation process with our low cost/commitment solutions today. Integrations into enterprise solutions are available, future proofing your investment and maximising your scope of safety and process optimisations.

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