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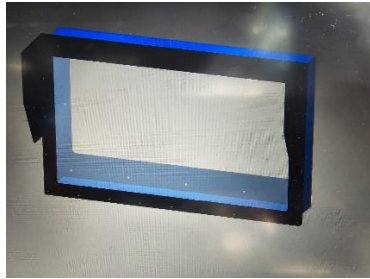
professionals in project management

Document Control

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OUTDOOR DESIGN AND INSTALLATION OF TELEVISION ENCLOSURE



What?

- Daily safety communication is **communication** is vital in any organization.



How?

- We designed a 55inch outdoor TV casing using **Solid Works**.



Results?

- Displays assisted **mill works in receiving daily and monthly notification** upon entering the main gate.

A SYSTEM TO DETECT UNDERCARRIAGE FIRE



What?

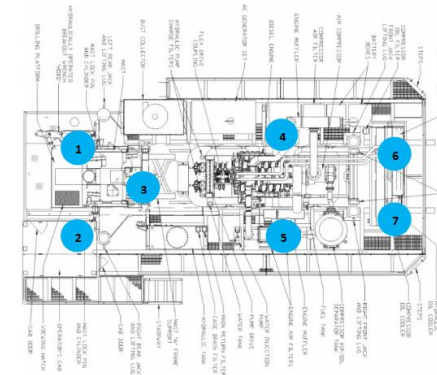
- CATPILLAR MD6250 mine **drills** dust skirt and hydraulic system caught fire and **burnt the whole piping system and cab** due to hot holes.



How?

- **temperature sensors** were installed on the **undercarriage**. The engine already has an engine protection system installed for protecting the engine.

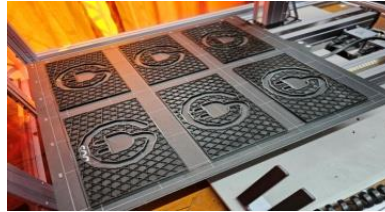
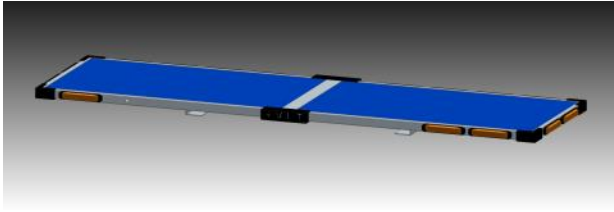
MD6250



Results?

- **Operator gets a notification** via a flashing siren installed in the cab once the temperature on the **undercarriage** of the machine **reaches 50 degrees**.

SOLAR STROBE LIGHT



What?

- Proximity Device drop battery voltage on bakkies when parked and need to be jumpstarted at a higher frequency.

How?

- We designed a solar panel integrated with a strobe light using Solid Works.

Results?

- The battery life of bakkies was brilliant.
- Belt signal indication light added to improve brother and sister keeper in mine.

TWO WAY RADIO COMMUNICATION DISPLAY



What?

- Design a device that will improve communication in the mining industry.
- Investigate and ensure that the system is integrated with the existing two-way radio.

```
if(currentchannel != channel){
  Serial.println("Channel: " + currentchannel + "\n");
  printChannel(channel);
}
delay(7000);
}

void printChannel(String _channel){
  currentchannel = _channel;
  if (_channel == "00000")
  {
    // Channel #0
    display.clearDisplay();
    display.setCursor(0,27);
    display.println("X");
  }
  else if (_channel == "00001")
  {
    // Channel #1
```

How?

- Used sheet metal features in Solid Works to design the body of the displays.
- Programmed a microcontrol using the C++ programming language.



Results?

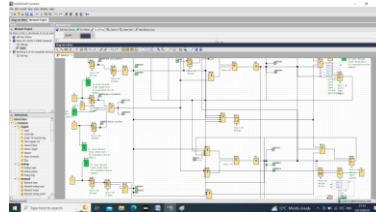
- Response time improved on the two-way radio between mobile equipment.
- Increase visibility; the full effect is felt at night.

REMOTE CONTROL AND MONITERING SYSTEM



What?

- Design and assist in the **monitoring** of the two-way radio **network**.
- Monitor the **backup system, power trips, and room temperature**.



How?

- Used **programmable logic controllers (PLC)** to program all conditions?
 - Installed **wireless and fibre** for communication between **network points**.



Result?

- **Response time improved**, which led to **less downtime** due to **two-way radio communication**.
- From main PLC **communication was compact modular reclose statues SMS sent to client** after set change in condition.

CAMERA SYSTEM AND PLC ON PITVIPERS 275 AND DM30S



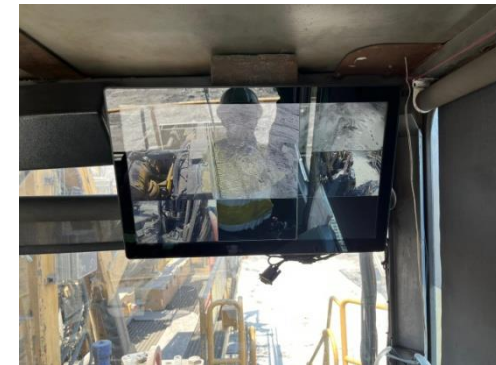
What?

- **Maintain the camera and Programmable Logic Controller** system on drills.
- Research ways to **improve reliability and safety** on drills.



How?

- **Removed 220 VAC Network Video Record** and screen and replaced it with a **24 VDC camera system**.



Results?

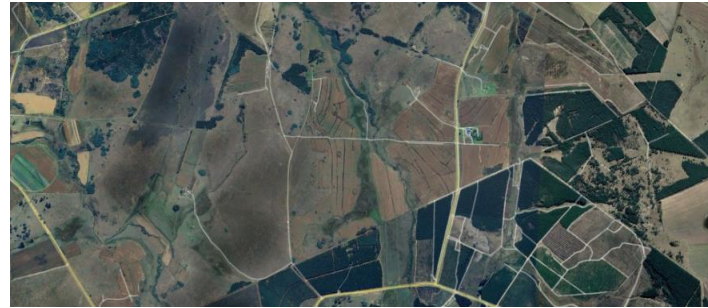
- Drills are **safer** as **no 220 VAC** present.
- Engineer is able to **improve the reliability** of machine by **providing footage of any failures**.
- **Visibility** of operator **improved**, therefore **fewer accidents**.

REMOTE CAMERA INSTALLATION



What?

- A farmer is struggling with **safety on the farm** and wants a system that can **monitor his/her livestock remotely**.



How?

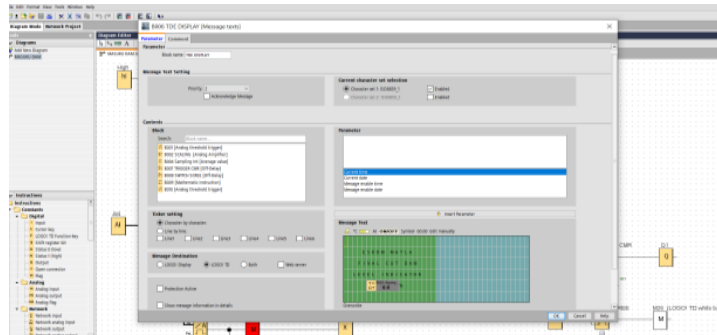
- Designed a **schematic**.
- **Constructed panels and steel work** to place the panels on a high laying area in order to keep the **batteries and solar panels elevated** to improve their security.



Results?

- A Farmer is able to **monitor his/her livestock remotely**.

REMOTE MONITORING OF DAM LEVEL



What?

- Eskom **ash dam overflows** causing an **environmental hazard**.

How?

- Used **programmable logic controllers (PLC)** to monitor the level of the dam.
- Installed **LOGO! CMR wireless communication** to send SMS to responsible person.



Results?

- **No dam over spill** experienced.

LET'S TALK ABOUT YOUR NEXT PROJECT.

REG No | 2019/102559/07

Tel | 082 861 8064

Email | sales@fuzepro.co.za

www.fuzepro.co.za

17 Tipuana Street

Arboretum

Richards Bay

3900

806 Clearwater Eco Estate

Northfields

Emalaheni

1035