



*Design & Production*

# MTP POLAND



*Solar Traffic Sign*

## Automated Stop-arm Camera Solution



Picture 1: Stop arm violation detector

### Take action to protect students outside the bus

Stop-arm camera solution helps keep drivers focused on safe off-loading and on-loading of students by automatically capturing stop-arm violation events and tagging them with relevant details such as date, time co-ordinates required for law enforcement review.

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- Stop-arm violations trigger event recording without driver intervention,
- Capture license plate numbers of violators in high-definition
- Tag video evidence with date and time,
- Upload stop-arm events automatically to control room via WIFI in yard or upload on time to control room server with modm ,



Picture 2: miniPC and Camerat

## How Stop-arm solution works

**1: Vehicle illegally passes the bus:** A sensor installed directly below the stop-arm will trigger a marked alarm on the video recording each time it senses a vehicle passing the stopped bus illegally (i.e. stop-arm engaged and flashers on).

**2: Two camera angles capture the event:** A miniPC captures views of the event from both directions (oncoming traffic and vehicles passing on the driver side).

**3: Video evidence tagged:** miniPC recording is tagged with stop-arm violation and information such as date, time.

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**4: Violation downloaded:** When the bus returns to the yard, the video tagged as a stop-arm violation is automatically downloaded over WiFi to a central server for review and processing.



Picture 3: Automatic plate reader with date

Immediately after stop sign open, miniPC start processing video from camera, and if detect any violation, record a few second video and picture of violator vehicle and automatically red vehicle plate number and save in its memory.

Video and picture along with plate number and date and time can send as online to control room or can upload to control room server via wifi after bus reached to main station.



Picture 4: WIFI uploading data to control room server

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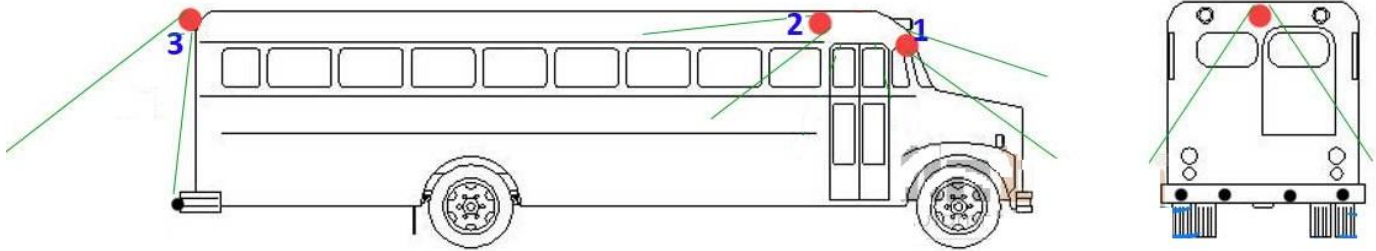
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## Rear and front distance detector



Picture 5: Rear and front detection camera

Distance detector camera are installed rear of school bus, they continuously tacking video and send to miniPC,

miniPC process video and if detect any car that close to school bus, it takes capture and video of violator vehicle, than automatically read plate number and send this full data (time, date, image and video) to control room or save in its memory.



Picture 6: Rear limitation distance

One distance detector camera also install front of school bus, so if school bus driver don't care limitation distance to front car, miniPC detect this violation and send it to control room or save in its memory.

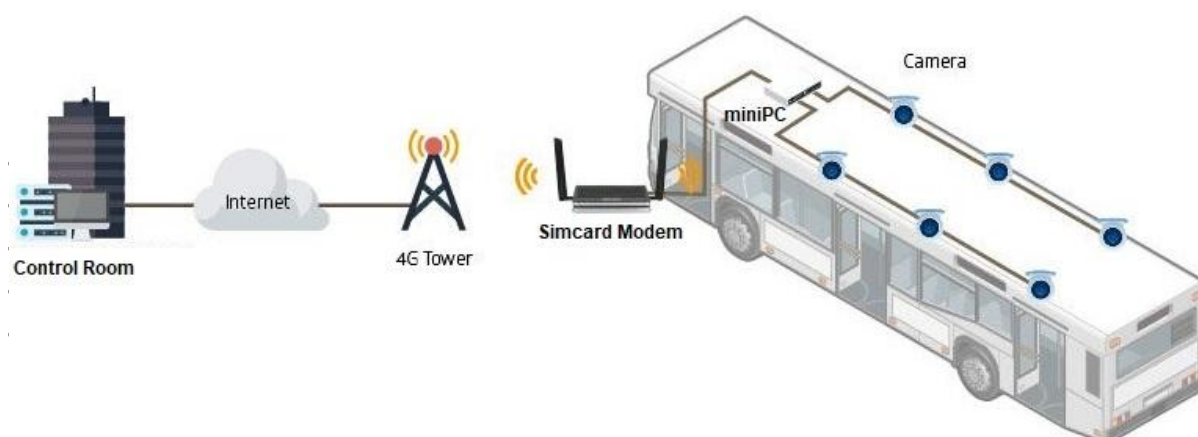
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Picture 7: transmission data and violation capture along with video to control room

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