PRODUCT SOLUTIONS FOR
INTELLIGENT TRAFFIC SYSTEMS

AGD **645**
PEDESTRIAN DETECTOR

Case Study

Solihull Council keeps traffic moving and pedestrians safe with new crossing technology

The AGD 645's detection zone is easy to adjust remotely

Solihull Council wanted to improve traffic flow and enhance safety on its pedestrian crossings. A larger pedestrian detection zone would help ensure optimal performance and a live video feed to its UTC centre would help the traffic control team monitor activity and make adjustments without unnecessary site visits.

Jag Mudher, Solihull Council engineer for UTC and CCTV, explains: "We were looking not only to enhance the detection zone if possible, but also to have more flexibility regarding the way data was collected and fed back to the control room - and with budget constraints always an issue, we were also hoping to reduce the need for on-site visits by engineers."

The new AGD 645 Pedestrian Detector offered a solution to these issues, and Jag and his team installed a trial unit at a location which was not only within walking distance to allow them to regularly 'walk test' the crossing zone of the 645, but where there was also a nearby CCTV camera which allowed them to view and compare the live CCTV image with the video output of the 645.

Better performance

The Puffin and Toucan crossing strategy uses pedestrian detection to minimise delays to road users. Kerbside presence detectors are normally mounted above ground on a traffic signal pole - their function is to 'sense' pedestrians standing in the crossing wait area.

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When the kerbside button is pressed to call the pedestrian stage, the controller checks the output of the detector to confirm the presence of pedestrians, and continues to do so until the pedestrian stage appears. If the detection area is unoccupied for more than a pre-set period, the call is cancelled and the pedestrian stage will not appear.

However, as crossings evolve and pedestrian wait areas get larger, traditional kerbside solutions don't always provide the detection zone coverage that enables this strategy to be fully realised.

False detections caused by shadows, or failures to detect caused by restricted zone coverage, have caused issues for crossing users and some local authorities have stopped deployment of kerbside detection. Another concern is that where crossings extend beyond a detector's capability, additional units are normally required - adding cost and risk. Setup complexity is often also cited as an issue.

If a problem occurs on site, an engineer is required to visit the crossing to investigate and address it - costing time and money. In some instances, the problem may be caused by a specific environmental condition which may have changed by the time the engineer gets to the site.

"On some of our crossings, the equipment failed to cancel the pedestrian phase if, for example, people crossed before the green man showed, while the traffic was still running," says Jag. "This meant we were losing a lot of valuable time that could have been given back to the traffic. There were even instances where because of trees or shadows the unit would cancel out the demand altogether, which the pedestrian may not be fully aware of and would frustratingly require the pedestrian to press the push button again."

The AGD 645 is pole-mounted and simple to install

Configuring the 645 in situ

Better detection

Jag and his team were looking to AGD's new 645 Pedestrian Detector to address these concerns. Developed as a result of feedback from local authorities, the 645 has a larger detection zone that suits most wait areas in the UK – reducing the amount of infrastructure and detection required on wider wait areas such as Toucan crossings.

AGD's pioneering 3DHD optics bring affordable, high-definition image capture and enhanced processing to kerbside detection. Advanced optics deliver enhanced 'detect and reject' and real-time video, while the 645's IP capability means it can feed video back to control rooms where detect zone adjustments may be made remotely. Setup is also super-simple using WiFi AGD Touch-setup. Once the device is mounted it can be set up wirelessly, and adjustments can be made just as easily.

AGD has used its stereo vision-based detection and greater processing ability to develop advanced algorithms for enhanced detection and shadow and clutter rejection. The performance of the new AGD 645 is far superior to that of its predecessors – it gathers more data and uses smarter processing to make highly accurate detections. Testing on live customer sites has proved accuracies of over 99.9%.

"False detections are a thing of the past with the 645," confirms Jag. "We can't fault it."

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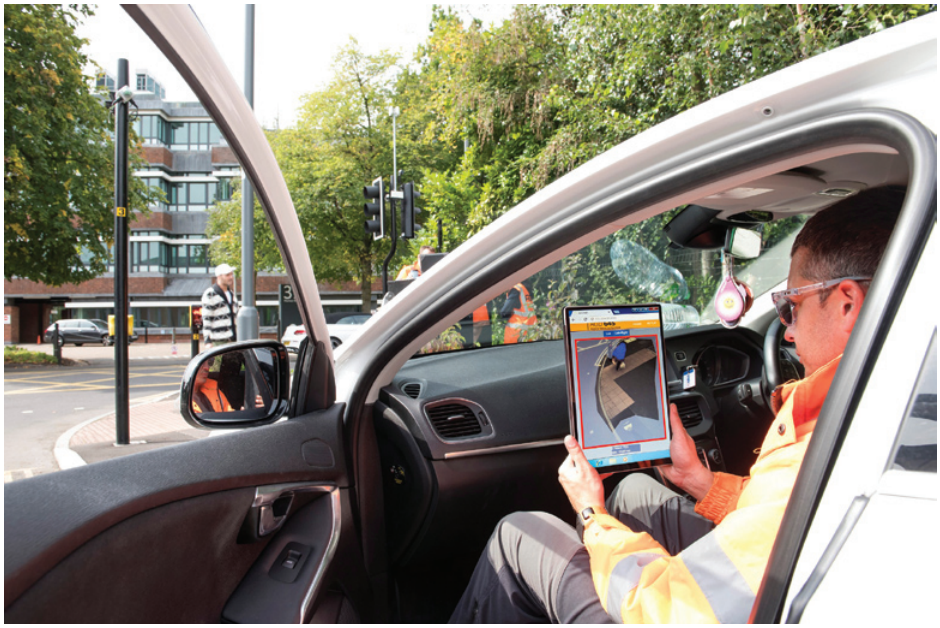

Setup is quick and easy using WiFi AGD Touch-Setup

Simple setup

The simple 3-step WiFi AGD Touch-setup allows anyone setting up the detector to achieve maximum performance with very little effort. The detector hosts its own setup software and generates its own WiFi signal, so engineers don't need to download anything prior to installation.

The 645 can be set up using any WiFi device – smartphone, tablet or laptop. Its unique and secure WiFi AGD Touch-setup technology allows installers to configure the device in three simple steps: (1) name device, (2) select zone, (3) click to calibrate.

Multiple AGD detectors can be set up at the same time from a safe position on the ground, or in a vehicle up to 100m away, and the AGD 645 can be adjusted for zone changes just as quickly in the same way.

"The setup really is easy," says Jag. "AGD took us out to site and showed us how to set it up. You don't need any specialist tools, leads or software – in fact, you could sit in your car and watch the detector working."

To overcome the need for site visits after installation, the AGD 645's 'smart city' IP capability means it can be integrated directly with a UTC system. This gives users the ability to access any AGD 645 on their network, so they can view the 5m x 3m detect area, reset the zone and calibrate – all from their desktop.

"It's great to be able to tap into the device from the control room and watch what's going on at the crossing in real time," says Jag. "The larger detection zone is also a bonus because we can set the zone, draw it out and make it wider or longer – for example if we have a particularly wide crossing. With previous devices, you'd struggle to cover the whole zone sometimes if you only had one camera. Now the zone window is great and one unit does the job."

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‘Smart city’ functionality

For added ‘smart city’ functionality, when integrated with a UTC system, data on detections and cancelled demands can help local authorities understand how often and when crossings are being used. This deeper insight allows for more informed decision-making on network design, pedestrian flows and maintenance.

There are various ways in which this data can be used. Thresholds can be set for the number of demands or rejections, alerting the UTC system if a particular crossing seems too quiet or too heavily used, which may indicate a problem, and the 645’s real-time video capability lets control room staff see what is happening on the ground – for example, the detector may have been knocked or there may be a puddle that’s causing pedestrians to wait outside the normal detection area. This allows the detection zone to be adjusted in real time to keep pedestrians safe and traffic moving.

Another option is to download information for a particular unit, assess it to see whether optimal performance is being achieved, and adjust where necessary.

“The data is really useful,” continues Jag. “If we get any complaints we can go back and see what was happening at the time and of course we can use the data to inform our future planning.”

> *“Following the recent trial period for the AGD 645 Pedestrian Detector, the performance of the unit by continuous monitoring and site visits has surpassed all expectation without any issues. We have a total of 72 crossings and 48 junctions, some of which have pedestrian crossings. I can positively say that for any future projects, we will definitely be considering AGD 645s as one of our essential above-ground detectors.”*
>
> ***Jagdip Mudher, Engineer at Solihull MBC***

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