

ZARAGOZA ADAPTABLE BUS STOP

The city of Zaragoza, Spain, has teamed up with the SENSEable City Laboratory at MIT to rethink the bus stop.

Bus stops are traditionally static objects, designed specifically for "stopping." The adaptable bus stop instead sees the bus stop as a neighborhood landmark and gateway: an interactive object that should be open to the dynamic flows of the city. Through technology, the bus stop becomes an information node, conveying data from riders to the city and from the city to riders, and thus forging stronger connections with the local community.

The adaptable bus stop serves transit riders in several ways:

1) Acting as a trip planning map, you can place a finger on your destination using a glass screen with infrared, and the bus stop will draw the shortest bus-travel path from where you are. Using information from a GPS tracking system, it will also show you where the relevant buses are positioned in real time and when they will arrive at your desired destination. You can beam this itinerary to your mobile phone, or request an SMS notification when the bus is almost at your location if you don't want to wait at the bus stop.

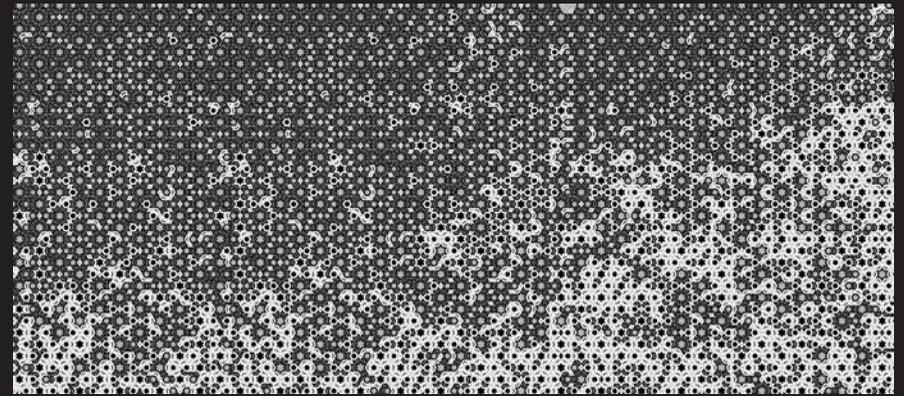
2) Riders and passers-by can create digital graffiti on the bus stop by drawing with their fingers on a touch-sensitive surface or by sending an image from their mobile phones. These functionalities can also be used to post ads and community announcements. The bus stop thus becomes a public venue connected to its local neighborhood. Most mobile phones already support high-resolution images, but tiny screens prevent those images from being viewed properly. The bus stop transforms urban furniture into a public interface for mobile devices, harnessing computational power that is now found in the pockets of many ordinary people.

3) Each bus stop is a wireless Internet hotspot. All bus stops in the network are connected through a wireless meshed network, thus spreading Wireless Fidelity WiFi Internet in the city. Due to the high density of bus stops, a mobile device can use triangulation algorithms to calculate the location of a bus with a high level of accuracy. This allows people to receive enhanced location based services through their mobile devices - something that has been limited so far by current positioning technologies.

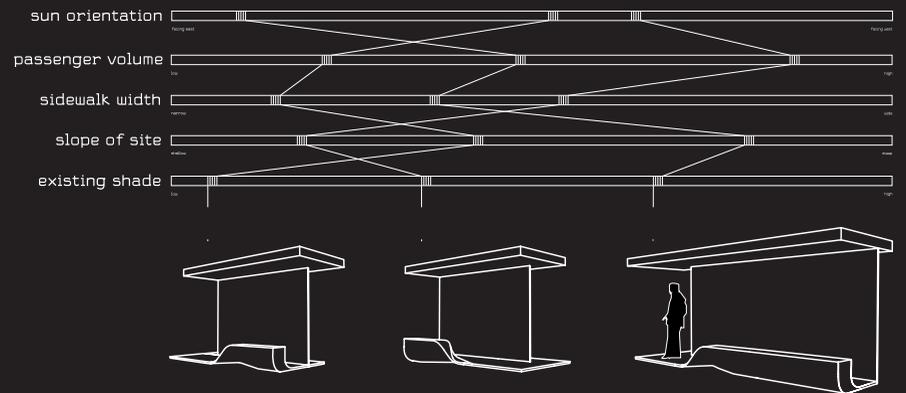
Just as information responds to people's queries, the architecture of the bus stop responds to its environment. The number of bus riders at a given location determines the size of the bus shelter, varying the length of the roof, bench and touch screen, which are customized at low cost using computer aided design and manufacturing (CAD-CAM) techniques. The roof, like a tree, changes from full opacity to transparency and adapts to weather conditions like sun and rain. It uses a Moorish pattern found in Zaragoza's Aljaferia Palace.

The bench itself is formed by raising the ground using a CAD-CAM structure. The position and shape of the bench depend on its relation to the sun and roof in order always to provide areas of shaded seating. Photovoltaic cells placed on the bus stop's roof provide up to 50% of the power required for its operation in Zaragoza.

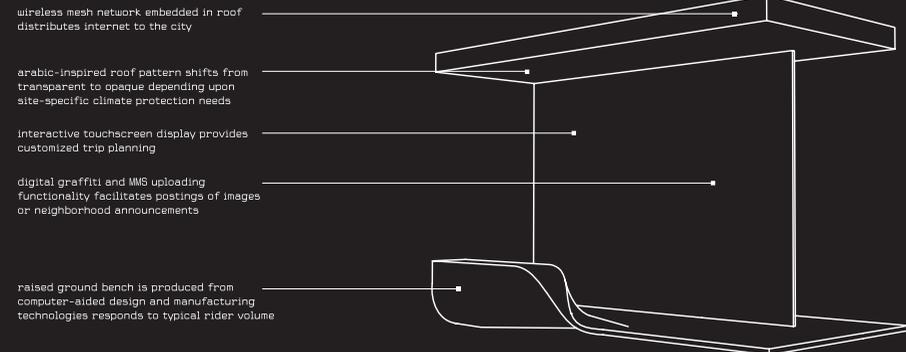
ROOF PATTERN



SITE - SPECIFIC DESIGN



INTEGRATION WITH THE CITY



CREDITS

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