Technology Factsheet 1

Key Features of the Hourbike System

The technology behind Hourbike's bike sharing product is a latest generation system that has been developed specifically for the automated management of large numbers of bicycles in a public service. This builds on 10 years of production and development, and is currently in use managing approx. 2000 bikes in in UK, including Liverpool, Reading, Oxford, Northampton, Lincoln, Sheffield, Southport, Dumfries as well as across the EU.

The product has three distinct components :

- The rental system
- Physical stand infrastructure
- Bikes

Each of which can be purchased separately or as a pre-integrated system.

Rental System

The Rental System is the collection of electronic components that lock the bikes to a bike-station with smart locks and control the rental process. They are modular and have standard fixings to allow them to be installed in a number of ways to suit the local environment. The stations provide excellent visibility and marketing opportunities, the electronic assets are secure and bikes are therefore simpler and lower cost to maintain.

A processor unit is supplied which contains with the power supply, computer, modem and associated electronics necessary to power the station. This is contained in an alloy frame, with a lockable cover with options for a full kiosk style totem, or mini-totem.

For pedal bike operation, two large capacity batteries supply power to the unit, charged by a solar panel. This provides year round power. The unit must be mains supplied for e-bike operation.

A console (keypad) provides the user interface.
This has a screen for user instruction, a touch sensitive keypad with no moving parts which is also back lit, a power button and the smart card proximity reader (Hi-tag or Mifare)

The console can provide 6 different user selected languages (roman alphabet only). All the menu items can be rewritten in a local language using standard XML language files.

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Up to 16 individual electro magnetic locks per stand. (Minimum 1)

These locks can be provided on a whole range of stand designs. Each lock is numbered separately and has its own release button that flashes red or green to signify operation. The lock internals are inserted from the front in an alloy sleeve enabling easy replacement of individual locks. The bikes are fitted with an RFID tagged lock which is inserted into the front holding the bike upright whilst allowing the bikes to be rotated and lifted without removal.

Please note an electric bike charging and docking port is now available as an option.

Key Features of the Rental System :

Flexibility – can be configured for 2 to 16 locks per station.
Additional "virtual stations" allow for bikes to be returned and rented from outside the stations
Modular - easy to upgrade and replace
Operates rental controls in real time through cellular 3G connection (SIM card required)
Can be remotely managed through internet browser management system
Components are linked using standard cat5 ethernet cabling with rj45 connectors
Powered by high capacity deep cycle 12v batteries with solar charging. No expensive communications connections, a 230v supply must be provided for e-bike operation.
Customer authentication is by RFID card and PIN, or customer number can be typed in.
Bike locks can be attached to differed bike models

Stand Infrastructure

The processor, consoles and locks need to be installed onto a structure suitable for a bike station.

Hourbike has designed a number of alternatives that are used to suit a range of environments, for example where space is short, or a mobile station is required. All of our stands are also available powder coated in any colour or electropolished stainless steel.

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Two examples are shown below, which show a “straight” deployment in stainless steel to accommodate 10 bikes.

Note the signage position, and the solar panel providing constant power.

These designs are purely surface mounted and are bolted to secure ground anchors, suitable for stands that may require moving regularly.

Specifications and images of the Hubs (i.e. space requirements etc) can be provided on request.

The Bike

Our pedal bikes are specifically designed for us by Arcade, a French manufacturer with many year experience of rental services in France. The basic design of the bike is for a low centre of gravity, unisex step through frame and a wide adjusting range to make it easy to ride and available for as many people as possible. The use of hub gears and brakes reduces maintenance and increases serviceability. The bikes have the following key features:

- 3,5 or 7speed hub gears
- Hub brakes front and back
- Hub dynamo lighting with quality Basta lighting kits that stay on for 2 minutes after the wheels have stopped.
- Shaft Drive, no chain to adjust or catch
- Luggage basket
- Bell
- Sidestand or Centrestand
- Adjustable but not removable saddle
- Combination lock (optional)

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- User instruction panel

As a standard, 5 bikes are supplied with every 8 lock hub.

The bikes are fully maintained according to service schedules developed using our experience of wear and tear in a rental environment. A custom developed software package controls the management of the bikes to ensure correct maintenance for both service delivery and insurance liability purposes.

The bikes are shaft drive which lowers maintenance needs considerably, and can be delivered with sponsor panels to increase commercial value.

From 2015 we can now offer a fully integrated e-bike with our automated rental stations. Unlike most other e-bikes, these are designed from the ground up to be outdoors 24x7, they dock into the same docking points as the pedal bikes but with an additional charge and communications connector.

Power modes are set by the customer as part of their rental process, and the bikes are fully GPS enabled, controlled and geo-fenced.

Supporting Systems

The rental system is managed by an online system that allows the operator to manage the bikes, stations, customers, transactions and rents in real time. This is a comprehensive back office system that provides everything needed to operate a secure and properly managed rental service.

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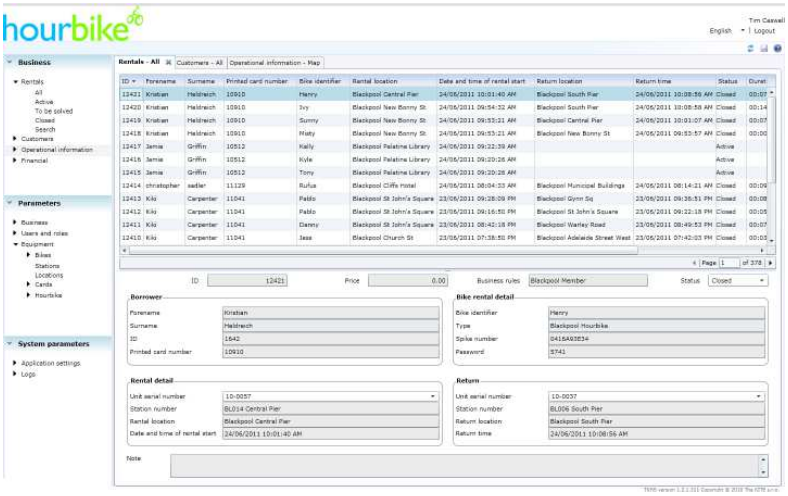
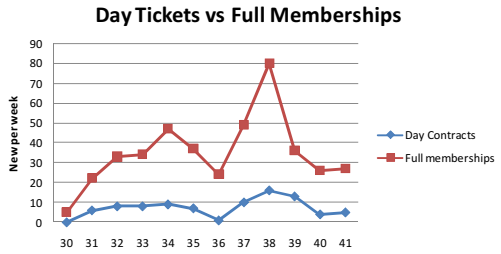
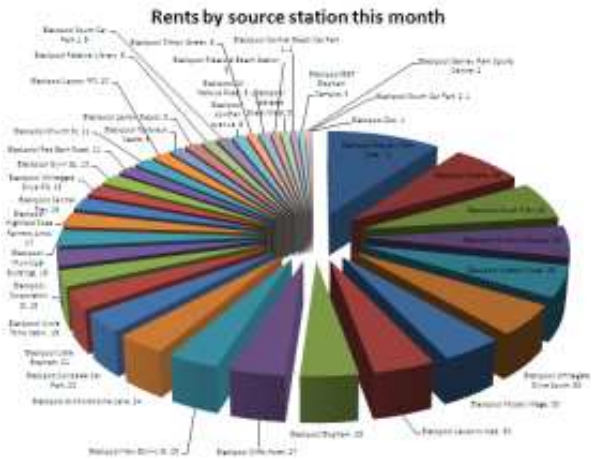


This is supplemented by a datawarehouse named BREAM (Bicycle REntal Asset Management System) that provides the back office functions for reporting, maintenance, and logistical needs of the bikes.

BREAM provides three modules :

1. Reporting – to produce the regular management information reports on usage and growth by a range of dimensions; subscribers / rentals / places / bikes etc
2. Maintenance - enabling the bikes to be properly managed as assets – calculating service schedules, storing and managing service information to provide an audit trail for insurance purposes
3. Logistics - Providing a basis of information for the daily logistical exercises of moving bikes between stations, and to and from the workshop, in order to rebalance the network and satisfy rental requirements that may change with time or by location.





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A website will also be required for customers, which may contain online registration and e-commerce capability.

Hourbike can provide its own site “white labelled” for customers to add their own branding and content, Of key note is an interactive map which displays in real time the availability of bikes so that members can see if bikes are available at their chosen sites.

Please note this customer website is not included as a standard part of the rental system but can be purchased separately.

For organisations that are new to bicycle sharing, operational procedures are also available as a template for local development. The hardware, software and operations of the Hourbike bicycle sharing system is designed to be modular, and flexible to the changing needs of bike sharing schemes.

If you would like to know more about the current and future developments of this system please contact us via the details at the bottom of each page.

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