

JAYCO SMART VANS

CASE STUDY

OCTOBER 2018

JHUB POWER MANAGEMENT SYSTEM BY
BMPRO TRANSFORMS JAYCO CARAVANS
INTO SMART VANS



BMPRO

TEAM
BMPRO
.COM





THE BRIEF

CUSTOMER	JAYCO
SECTOR	RECREATIONAL VEHICLES
COUNTRY	AUSTRALIA

CHALLENGE

To create a complete caravan power management solution with an interactive and universal control system, which can evolve and adjust to changing customer demands.

RESULTS

The world's first Android based power management system, the JHub. Installed in thousands of premium Jayco caravans, the JHub gives customers the freedom to operate the main electrical features of their RV from the touchscreen of a portable tablet.

INTRODUCTION

BMPRO QUICK FACTS

- 🔋 Parent company Setec
- 🔋 Australian manufacturer of power supplies since 1968
- 🔋 10 years in RV industry
- 🔋 Installed in 150,000 RVs
- 🔋 70% of Australian RV market

WE ARE TEAM
 **BMPRO**

CARAVAN ELECTRICAL SYSTEMS

Modern caravan electrical systems include a dedicated 12V battery, 230V mains (for Australia), solar panels and a range of 12V appliances. In today's caravans, appliances vary from humble lights, a fridge and water sensors to creature comforts like microwave, coffee machine, a flat panel TV and, in some cases, electrically powered caravan slide-outs. There's also a generator and an inverter to get more power to your caravan appliances.

To manage them all, a caravan needs a power management system. The power management system works as the caravan's brain, coordinating the separate components of the complex electrical mechanism of an RV. To ensure all equipment performs at its best and there's enough power available, the caravan needs a control system, which, continuing the analogy, would be the RV's eyes and hands.

MODERN CARAVAN ELECTRICAL SYSTEMS INCLUDE:

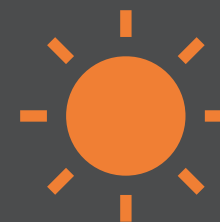
DEDICATED
12V BATTERY



230V MAINS
(AUSTRALIA)



SOLAR
PANELS



RANGE OF 12V
APPLIANCES



BATTERY AND POWER MANAGEMENT SYSTEMS **BY BMPRO**

Setec, the parent company of BMPRO, launched their first battery and power management system for RV, the ST Series, back in 2007. Since then they've been working on improving BMPRO power management offerings and together with Jayco, created the battery management system J35, which has been powering Jayco vans for the last 4 years.

The idea behind the J35 was to create an all-in-one power management system with its own monitor and controller, the JHub, which could not only monitor and control features of the van but also evolve as requirements changed. The J35 allows the house battery to be charged from different power sources and distributes power to multiple 12V appliances while protecting the caravan

electrical system. The JHub allows caravaners to manage RV functions, like turning water pumps on and off, from a wall mounted display. The JHub also provides users vital information on the status of the house battery, available charging sources and water tank monitoring.

The solution offered to Jayco customers in 2017 turned Jayco caravans into smart vans and can be compared with the concept of Smart Home.

“A smart home is a home that is equipped with technology to remotely control and automate household systems like lighting, doors, thermostats, entertainment systems, security alarms, surveillance cameras and other connected appliances” ... “to create a unified home monitoring, control, energy conservation, ecosystem.”

Vivant Smart Home



SITUATION **HOW THE** **NEED FOR** **THE JHUB** **WAS** **IDENTIFIED.**

J35, similar to BatteryPlus power management systems' range, is a power supply with electronic switches. It was partnered with a display called the Drifter.

The Drifter is a simple analogue device, which is monochrome and static. The next step for the company was to bring control of the caravan's power functions to the next level by giving customers greater interactivity and freedom when using the controller.

Team BMPRO brainstormed ideas on improving the user experience with the aim to create a high-end product. The aim was to create a

system for the future. The initial idea was to add colour to the display. Through discussions, the concept of a flexible and portable platform was born.

A platform that can evolve with time, continually support new equipment and easily integrate new features and updates. And so the idea of an app was suggested.

Setec's design engineer Richard Johnstone says: "I do recall discussing ideas like something about "Jayco app"- The idea of having a customisable app, which can be updated any time, excited everybody."

Two years back, when the JHub was first envisioned, the power management industry was lagging in technological advances and utilised simple LED displays instead of modern devices, such as smartphones and tablets.

There were no solutions available in Australia even remotely like the concept of a portable control hub. The tendency among overseas manufacturers was to improve the interface of controllers with colours, icons, and smarter displays.

“NOBODY HAD A DIGITAL PRODUCT THAT WAS PORTABLE AND INTERACTIVE.”



IMPLEMENTATION

When the idea was born, it was too early for the industry to understand it's potential. Luckily, BMPRO's business partners at Jayco were ready to give it a go and provided constant, valuable feedback.

It took approximately 2 years to develop a complete power management system which included the JHub display. After all, this product was to be the next generation in caravan control and management.

The ideas evolved as work on the power management system progressed. The team envisaged caravan owners outside the van, pressing the button to operate the slide-outs. At that time, you had to be inside to operate slide-outs and would not know if there were any obstacles outside the van. Portable control would let caravanners see with their own eyes how far they can go with their slide-outs, which also adds to the safety of the people around.

There were also new ideas such as the inclusion of solar management and removing the need for an external regulator to save manufacturers' time and cost for their caravan build.

Another extremely important idea was to be able to connect to the outside world for the latest news and information, bring your own device and interact with the digital world as we all do currently through our mobile phones.

A Jayco caravan was moved to BMPRO's premises and a handyman built a setup complete with slide-outs to test their new ideas. Team BMPRO constantly experimented on the test van and discussed with Jayco the features important to the new power management system.

Jayco proved to be an excellent, though demanding, customer, as they showed great involvement in the project. They took the system and tested it in real life, on the road, before launching it. The on the road test allowed Jayco to offer improvements to the system and even revealed some issues which BMPRO did not catch in the test van.



CHALLENGES

THE CUSTOMER IS KEY.

According to CEO of Setec (2009 – 2016) David Bayliss, the main challenge in designing the JHub was to get the interactive flow with the customers right.

Team BMPRO consulted with customers to find out the key things they wanted to understand about their power management system. This included the relevant content they wanted to see on the interactive screen, what interactions they would like with the control system, and finally, what the display should look like.



PROTECTING THE TABLET IN THE ROUGH, AUSSIE TERRAIN.

The company selected a standard Android 7" tablet as a platform for the control system. To protect the tablet in the moving caravan it needed a rugged and reliable bumper cover. However, as the tablet market is very fast-paced, and shapes and dimensions of tablets are ever-changing, the task was to find a bumper case which would accept different tablet shapes. The solution was a flexible protective rubber cover, which ensured that whether mounted during the journey, or taken off the wall the tablet was snug and safe.

FITTING ALL THE PIECES OF THE PUZZLE TOGETHER

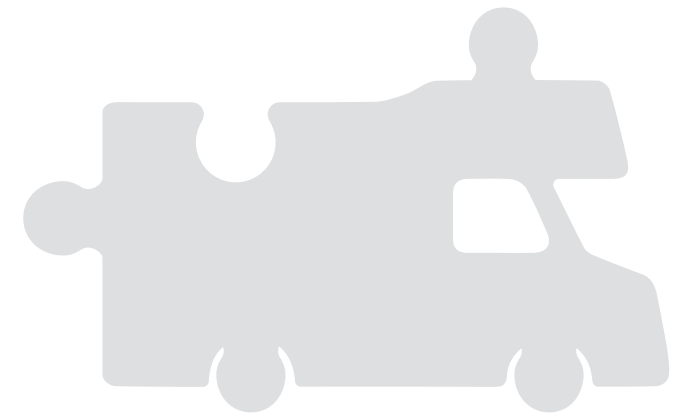
Another challenge was putting all the pieces of the puzzle together. This included the JHub app, tablet, ControlNode software and hardware and the updated J35 software and hardware. It was a very complex solution, with **Bluetooth interface between the tablet and ControlNode and CAN bus interface between the J35 and Control Node.**

To fit the pieces together BMPRO needed the right set of skills, and Team BMPRO grew with the project, both in number and with expertise acquired.

With the launch of BatteryCheck to remotely monitor battery status, the team already had experience developing apps. However, JHub was their first app which allowed not only system monitoring, but also control.

To develop all the software required for the system, Setec employed several software engineers. For the first time in its history the company had a software development team that was larger than the hardware development team.

Working on the JHub project was a great stepping stone for the company, and the team enjoyed professional growth due to the project.



For Team BMPRO, it was the most complicated system they ever designed, and by incorporating wireless technology, there were a lot of new concepts to implement.

CONVENIENCE AT YOUR FINGERTIPS

The JHub has changed the way you interact with your caravan during your travels. Take the portable tablet with you to turn the features of your caravan on and off instead of going to the caravan's control panel. Now the traveller can sit near the fire having dinner and consult the app to check if there's enough power keeping the drinks cool in the fridge.

The tablet is also a convenient platform to access digital content when you need and when wi-fi is available. Download all the latest user manuals or keep up-to-date in the latest in caravanning.

ADVANTAGES

EASY TO USE CLEAN DESIGN

JHub is highly intuitive and simple to understand. The app was designed for common people and has the information the user wants. For example, users care more about time remaining on the battery than they do about amperage. Being an app, rather than a display, JHub is also extremely nicely presented.

Providing a lot of excessive information is a problem with many apps on the market. Team BMPRO was able to get rid of a lot of data clutter. The JHub has only two screens. The first displays battery status (charging / discharging / idle), temperature and time. The second screen provides more information on charging sources and power usage.

The JHub app also has a clean and colourful, easy to read layout. A quick glance at the screen is enough to check if the solar panels are charging the battery or if it's time to empty the grey water tank.

IMPROVED WATER TANK MONITORING

Another problem solved by JHub is correct reading of water tanks. Different water conductivity in conjunction with older analogue technology can often give incorrect data about water tanks, and it is still a problem with many systems by other manufacturers. The digital technology in the JHub's system provide a more accurate reading

THE FUTURE IS ALWAYS AT THE FOREFRONT

The JHub has the potential to evolve together with the changing demand from our customers. The introduction of new features and improving the user experience is as simple as updating the app, such as adding new and relevant digital content and connecting other caravan equipment. As the system is developed further, it will be able to talk to more equipment, for example, fridge, air conditioning system, or awnings. The CAN interface is the basis for the further growth of the system. Adding a new device is as simple as plug-in the device and update the app.

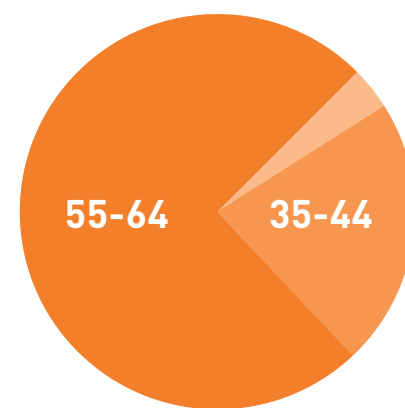
RESULTS

CUSTOMER FEEDBACK

“THE JHUB IS A GREAT INITIATIVE WHERE EVERYTHING IS AT YOUR FINGERTIPS.”

It's been over 18 months since the JHub was launched. Since then, there have been thousands of Jayco top of the line RV's fitted with this state of the art BMPRO system. BMPRO conducted a user satisfaction survey with some of these owners of the JHub. Key findings from the survey include:

The owners of caravans with the JHub on board are very diverse. The biggest proportion of JHub users are aged 55 to 64, but there's also a big group of younger caravanners (35 to 44) that own a JHub.



AGE OF JHUB OWNERS

90%

Consider the JHub to be an integral feature of their van.

70%

Find the JHub easy to operate

5%

Of users struggle with the technology

75%

Use the JHub to control water pump (on and off)

50%

Use the JHub to monitor hot water & control slideouts

30%

Use the lighting zone level.

100%

OF CUSTOMERS USE THE JHUB TO CHECK BATTERY STATUS AND WATER TANK LEVELS.

80%

Enjoy the flexibility of taking the tablet off the wall to use in a convenient location.

Most customers are satisfied or very satisfied with the layout of the app and the available features.

* Percentages (%) represent number of respondents from JHub customers surveyed.

RESULTS

CUSTOMER FEEDBACK

BMPRO ALSO LISTENS TO THE CUSTOMERS. WHEN COLLECTING FEEDBACK, THE COMPANY WAS EAGER TO FIND OUT WHICH OTHER FUNCTIONS THE USERS WOULD LIKE TO SEE IN THE JHUB IN THE FUTURE.

Functions included monitoring gas tank level, outside temperature and caravan level indicator, and even providing remote climate control.

Customers would also like to see all manuals for the van and its appliances stored in the tablet.

Many users would love to see the app also available on their phone to add an extra layer of security for the tablet, and further flexibility of the remote-control system.

Thanks to user feedback, BMPRO is getting ready to launch the JHub App for smartphones.

RESULTS

MANUFACTURER FEEDBACK

BMPRO BELIEVES THE SUCCESS OF THE PROJECT WAS NOT POSSIBLE WITHOUT TIGHT COLLABORATION WITH LEADING AUSTRALIAN CARAVAN MANUFACTURER JAYCO.

Chris Hooper, Regional RV Sales Manager at Jayco Australia, is also convinced that as Setec is one of Australia's leading power solution companies in the caravan and RV industry, it is imperative that both companies work together to develop and provide the most reliable and state of the art technology for RV users.

He believes that *"the JHub offers Jayco customers flexibility never seen before in controlling the important functions of their RV in one large and easy to read display. JHub was a first for the Australian RV industry, a tablet style control panel that's easy to read but has functionality that goes beyond other control panels on the market."*

When Chris was asked why is it important to offer this feature with top of the range Jayco caravans, his answer was:

"When you buy a premium caravan you should expect state of the art. JHub gives our customers exactly that with everything from zoned lighting, on/off for water pumps & hot water services, solar input and battery usage statuses and even internet connection when you have access to WIFI. The JHub tablet can even be removed from its cradle and used like your normal tablet if you so desire."

JHub is an innovative solution offered in premium Jayco caravans, which helps the leading Australian caravan manufacturer stand out from the competition and strengthens their brand perception for quality-built RVs.

BMPRO power supplies are one of the nine reasons quoted by the company as their product strengths.

CONCLUSION

Team BMPRO realised the need for customers to manage their caravan features remotely and on the go. They pioneered and created a power management system with portable control, the JHub. The fact that control is in the hands of the user, was the driving force behind the innovation.

BMPRO's JHub is a rugged, smart, future-oriented and reliable power management system, turning the caravan into a smart home.

In today's IOT world, everything will have electronics in it, with sensors placed everywhere. Homes are getting smarter and smarter, and similar to their smart home, people will want to know everything about their caravan.

People are more and more into talking to Alexa, Siri, or other voice assistants, and for caravan owners a smart control system like JHub built into their caravans in the future could provide voice assistants with the most relevant information.

Furthermore, customers will be interested in monitoring their caravans from wherever they are, which is possible utilizing Wi-Fi technology. For example, if you are out fishing or hiking, you could turn up the water heater to ensure the shower is ready.

BMPRO DEVELOPED A SYSTEM WHICH WORKS WITH BLUETOOTH, CAN, AND HAS SMART ELECTRONIC FUSES, WHICH GIVES IT ENDLESS OPPORTUNITIES IN CARAVAN AUTOMATION AND WIRELESS COMMUNICATION. WITH AN APP THAT CAN BE UPDATED ANY TIME, AND A MODULAR HARDWARE APPROACH, BMPRO IS READY TO MEET ALL THE FUTURE OF CARAVANNING, AND BELIEVES THE OPPORTUNITIES ARE ENDLESS.