A Dog’s Purpose 2.0

“Robopet Sparky, record the story of my experiences in Adelaide.”

“Ok Susan, I’m ready when you are.”

“Adelaide has changed more in the 134 years since I was born than in the previous 315 years since it was founded. Now, in 2151, the population has grown to 22.2 million. Adelaide is bordered by green hills on the east and miles of coastline on the west. I love our Mediterranean climate which provides long, hot summers and cold, snowless winters. Being a city planner, I’ve overseen the economic planning which led to strong industries, such as engineering, medical research, and the wine industry. These combine to create a GDP of $342,254,000,000.

Today, the most impressive elements of our infrastructure are transportation and education. Transport is enjoyable because of the AutoHybrid vehicle. It can be autonomous, conventional, or a combination. This sweet ride has seats that swing out for personalized access. The seats, pedals, climate, and mirrors conform to the individual as needed. A fun and healthy way to spend the drive is Carsercise! The front seats can convert to rowing machines to take you on an exercising journey, while at the same time generating electricity. Virtual Drive can take you anywhere like Mars, Antarctica, or just the park. Of course, these are only accessible in autonomous mode. You can verbally give destinations, and the car quickly and safely delivers you. Super highways feature conventional lanes plus autonomous lanes where cars travel closely to form aerodynamic car-trains.”

“My favorite way to travel is riding in the basket on the PEDICAB Bicycle Tour. People are engaged physically and mentally as the virtual guide explains cultural and historical aspects of the city. Plus, they automatically adjust to the size of the rider!”

“The cycles give great tours at the Intergenerational Complex for Education (ICE), where retirement facilities and schools are united. Each complex has its own specialty. Some include engineering, culinary, computer science, and trade school. Retirees may choose to live in the complex of their expertise where they share their knowledge while interacting with the younger generations. Interaction occurs in classrooms, during special events, and throughout the day. After the city adopted this program, I enjoyed a lot more interaction with the younger generation.”
“Could ICE be considered a city service?”

“Yes, not only ICE, but our elder services create healthier and more active citizens. I have experienced programs such as wellness, the arts, employment assistance, and counseling, all tailored to my life experiences, needs, and interests. Wellness and safety services are enhanced
using robo-assistants and intuitive exercise machines. They keep track of vital signs like hydration, heart rate, and temperature and adjust accordingly with fans, mist, intensity, etc.”

“Your health and safety is my top priority.”

“We do have a great safety record! The communication system includes city-wide monitoring and information sharing between services and infrastructure. Emergencies like crimes, accidents, and natural disasters will trigger warnings. Once, a fire broke out in my apartment. Sensors set off alarms, and we were all warned to evacuate. Smart-devices showed us the closest exit, and Flame Tamer drones cleared a path using pulses of electricity. First responders were already arriving. Autonomous emergency vehicles arrived quickly as traffic was automatically diverted. The drones alerted the hospitals to be prepared for those requiring emergency care.”

“Wow, Susan! Our infrastructure and city services are incredibly futuristic. They use a lot of the same technology that I have, like smart sensors, self-healing materials, robotics, computers, virtual reality, multispectral scanners, and artificial intelligence! These technologies were in their infancy when they were implemented here.”

“Back then, we faced many challenges. Citizens valued youth more than the knowledge and experience of elders. Seniors experienced problems with health and social issues like loneliness, mobility, falls, and mental decline. Also, 10% of deaths were attributed to medication errors.”

“A 75-year Harvard study showed that there is a strong link between social interaction, physical, and mental health. For example, depression negatively affects the immune system and vice versa.”

“Solutions to these health related issues were the Medi-Carousel and…”

“Most importantly...ME! Studies have shown that pets reduce stress, lower hearth rate, and combat loneliness.”
“Of course, how could I forget about you? You are incredibly lifelike. You stretch and yawn upon awakening, show excitement when I arrive, and you have the best puppy breath ever. Plus, you respond to verbal commands.”

“You can get a little bossy sometimes.”

“Watch it Sparky! I could have ordered a cat!”

“You’re not foolin’ this robo-pup. I’ve learned heaps about you, and you’re definitely *not* a cat person. I’ve monitored your heart rate, brain, and physiology. I’ve encouraged physical activity to maximize your health.”

“My mental health *has* greatly improved because you’ve read my moods and responded with a wag of a tail or a lick on the hand.”

“I use sight, sound, smell, taste, and touch to detect body language, mood, pulse, breathing rate, movement, and so on.”

“And you’ve done a bloody good job, as has my Medi-Carousel! Medicine containers, a motorized robotic pill dispenser, and computers are all elements of the carousel. It scans the bar codes and keeps track of medical history, allergies, doctors, dosage, and drug interactions.”

“My favorite thing is to bark when pharmadrones deliver medicine directly to the carousel and retrieve the empties.”

“One of *my* favorites is when you bark if I forget to take my medicine.”

“Between Medi-Carousels and Robopets, we have helped citizens of all ages be more active and independent throughout the aging process.

“In the early days, 10% of hospital admissions for seniors were the result of incorrect use of medications. Medication errors increase discomfort, lower the quality of life, and increase the risk of death. The carousel has virtually eliminated dosage mistakes, and we no longer have to rely on others to pick up medicine or remind us to take it.”
“It takes more than roos and meerkats to develop solutions!”

“Right! Engineers played a major role.”

“In our city, we have all sorts of engineers: mechanical, environmental, civil, electrical, agricultural, and many more. The most important in development of the Medi-Carousel and Robopets, like me, are robotic, software, and computer engineers.”

“Robotics engineers designed the drones to automatically insert and secure the medicines into the carousels. They engineered the carousels to rotate, select medications and vitamins, and dispense the required dosage.”

“They engineered us Robopets to do everything a real pet could do, like walking, jumping, fetching, and snuggling.”

“Software engineers programmed the drones to scan QR codes, control navigation, and process all information from sensors. They also programmed the carousels to control rotation, operate dispenser doors, and communicate with the pharmacy to verify prescription refills.”

“I’m doggone happy the computer and software engineers made Robopets more intelligent using artificial intelligence. They made us capable of processing information, collecting and storing data, analyzing the data, sensing and sending information, and most important of all, giving us personalities.”

<p>| TABLE 1 ADVANCED TECHNOLOGIES USED IN SOLUTION |  |</p>
<table>
<thead>
<tr>
<th>ROBOPET</th>
<th>MEDI-CAROUSEL</th>
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<tbody>
<tr>
<td>Visual Sensors detect mood, stress, respiration, activity, calorie intake and blood sugar by analyzing facial features, chest movement, eating habits, and perspiration</td>
<td>Facial recognition software: insures medicine is dispensed to correct person</td>
</tr>
<tr>
<td>Auditory Sensors: detect stress, mood, heartbeat, respiration, activity, and caloric intake by analyzing voice, recording heart beat/breathing, and eating habits</td>
<td>Voice recognition software: insures medicine is dispensed to correct person</td>
</tr>
<tr>
<td>Scent Sensors: detect stress, respiration, activity, caloric intake, O2, and blood sugar by analyzing odors emitted</td>
<td>Robotics: the carousel can rotate, open/close dispenser doors, drones are used to deliver medicine and retrieve empties</td>
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<tr>
<td>Taste Sensors: detect activity and blood sugar by analyzing sweat</td>
<td>Weights: senses amount of medication that is dispensed</td>
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<tr>
<td>Touch Sensors detect heartbeat, respiration, and activity by analyzing movement</td>
<td>Artificial Intelligence: gets to know all the information about you and your medicine</td>
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<tr>
<td>Artificial Intelligence: learns and adapts throughout your lifetime</td>
<td>Robotics: the carousel can rotate, open/close dispenser doors,</td>
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<tr>
<td>Robotics combined with sensors: gives the Robopet fluid, life-like movement by sensing terrain and movement</td>
<td>Computer: controls motion and coordinates sensors</td>
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<tr>
<td>Computer: controls motion and coordinates sensors</td>
<td>Drones: used to deliver medicine and retrieve empties</td>
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</tbody>
</table>
“But with all this technology, comes risk. Both the Medi-Carousel and Robopet store personal information. This data could be hacked or compromised. To reduce this risk, we use Military Grade Encryption. Information transferred between any of these devices uses a Virtual Private Network.”

“There is also a risk of computers malfunctioning. If the carousel fails, a citizen might receive their medication at the wrong time, or even the wrong medication.”

“Oh, they might not receive any medication at all. And, if I fail, you lose not just my companionship, but also important mental and physical monitoring.”

“So, engineers use triple redundancy to minimize risks. A reliability of 90% for a single computer is increased to 99.9% with two additional computers.”

“But isn’t all that expensive?”

“Of course. Expense is a tradeoff. Things like sophisticated programming and hardware have a cost.”

“But peace of mind is worth more. Nobody wants their personal data compromised or stolen.”

“That’s right! Anxiety causes stress induced illnesses like obesity, heart disease, Alzheimer’s, diabetes, depression, asthma, premature death, and accelerated aging.”

“But creating Medi-Carousels and Robopets didn’t happen overnight. It took lots of time to design, develop, and work out all the bugs. That’s another tradeoff, and Adelaidians have reaped the benefits.”

<table>
<thead>
<tr>
<th>TABLE 2 - IMPACT ON SENIOR ACTIVITY/INDEPENDENCE AND OTHER CITIZENS</th>
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</thead>
<tbody>
<tr>
<td><strong>ROBOPET</strong></td>
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<tr>
<td>---</td>
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<tr>
<td>low maintenance</td>
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<tr>
<td>encourages exercise</td>
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<tr>
<td>gives med reminders</td>
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<tr>
<td>provides companionship</td>
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<tr>
<td>reads your moods</td>
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<tr>
<td>monitors physiology</td>
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<td>reduces heart rate</td>
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<td>increases lifespan</td>
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<td>can be taken anywhere</td>
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<tr>
<td>alerts if med is not taken</td>
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<tr>
<td>reduces stress</td>
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<tr>
<td>alerts you to emergencies</td>
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<tr>
<td>reduces family worry</td>
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<tr>
<td>multi-generational usage!</td>
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**If physically/mentally healthy, you are more likely to be active and independent!**
“Robopets are pretty rad. We don’t die, get sick, or make messes. We improve mental and physical health and can be taken anywhere, even restaurants and hospitals. We only bite muggers, and we have a built-in-Taser!”

“Carousels are great too! Throughout my life, they have kept me on a strict regimen of vitamins and medicines as needed. As a result, I have been healthy my whole life.”

“If you feel healthy, you are more likely to be active. Plus, you have more time to spend with friends and family.”

“And that’s important.”

“We’ve been sitting here for a while, let’s go for a walk!”

[DING, DING, TIME FOR MEDS]

“Medi-Carousel is calling. Let me take my medicine first.”

Word Count- 1490


Adelaide


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