LOKAWIZ BENEFITS

Of Our Technology Approach

Lokawiz is an end-to-end IoT solution company. We build smart devices and smart solutions for enterprise and consumers with a unique approach. We develop solution platforms with small configurable plug-n-play components suitable for a range of IoT solutions.

Our innovation in hardware is much like software library concept but it has not been done in hardware before. We exploit some specific nature of IoT solution requirement to implement this approach in the hardware. LEGO® is another easy to understand example.

Our approach brings the following benefits and advantages over the competitors:

1. Adaptability
   Our IoT solutions are easily adaptable to the emerging user/market needs.
2. Upgradability
   They can readily upgrade as we have control over both hardware and software.
3. Scalability
   Within a solution, interdependent solutions (domain) and independent solutions.
4. Fast to market
   Faster to build and launch IoT solutions from our library-like set of components.
5. Cost effectiveness
   Cost effective to develop new IoT solutions due to reuse of core components.

Two types of IoT players in the market.

1. Type 1: Those who use off-the-shelf hardware components

Problems:

a. Limitations with features which sometimes may not be even available.
b. May have unnecessary hardware component increasing its overall cost.
c. Difficult to scale within a specific solution with emerging user needs.
d. Little or no flexibility with the hardware. Software hits its limitation soon.
e. Hardware becomes outdated/obsolete quite sooner requiring replacement.
f. Hardware replacement may require software updates that may be expensive.
g. Sort term outlook, expensive upgrades, may soon become hard to manage.

2. Type 2: Those who build HW & SW for specific IoT solutions

Problems:

a. Better than Type 1 due to better control on the hardware.
b. The developed HW & SW are good only for the specific solutions.
c. Long HW development cycle – HW dev, validation, certification, etc.
d. Slow and expensive updates – HW design changes, tests, certification, etc.
e. Longer time to build, long and expensive upgrades, only for specific use.

Sl. No.	Differentiation Items	Features, Benefits and Comparison
1.	Hardware configurations	Lokawiz hardware boards/devices have configuration options such as supply power, battery, battery life & measurement, micro-controller modes, on-board timer, interfaces, operating voltage levels, sensor, etc.
		This makes the hardware very versatile and suitable for use in different IoT use case with different requirements without a need for core design change.
		Type 1 players have very limited or no flexibility on this. Type 2 players may have similar flexibility only if design for.
2.	Plug & Play Components	Lokawiz hardware and solutions are built with specifically designed plug & play components. We have specialized design and interfaces that allows us to add, remove and replace hardware components easily.
		This Lokawiz design approach has the following benefits. 1. Add new hardware capability easily 2. Save cost by removing component that was necessary earlier but not need any more in latest deployment 3. Replace component with different/higher capability ones to upgrade post deployment 4. All the blocks are tested and certified separately so no need for long hardware development cycle for upgrades or new solutions. 5. Future proof hardware a. Easily adaptable for emerging requirements. b. Incremental cost vs redesign/full replacement. c. Long term scope/life of the deployed solution.
		None of the Type 1 & 2 players have these benefits. Type 1 are not adaptable at all. Type 2, in most cases, need long and expensive development, test and certification cycle most of the times to meet upgrade requirements in the hardware.
3.	Production configuration	Lokawiz hardware plug & play boards have been specifically designed using some core IC series. This means that same design can produce hardware of varying capability (e.g. RAM, Flash memory, processor speed, data rates, connectivity technology, battery capacity, etc.) using different specific board ICs without any need for design change/update. (Patentable Items)
		This aspect of Lokawiz hardware has the following benefits 1. Single design fulfils the needs of different levels of capability requirement 2. Allows manufacturing of varying capability hardware from single design to deploy in different applications to optimize device cost against system requirements

		3. Facilitates hardware upgrade by single component replacement without affecting rest of the hardware, firmware and the whole solution (+ Plug & Play)
		Type 1 hardware do not have any of these benefits at all. Type 2 players make solution specific to a uses case and do not normally have these design aspects. However, they may have these benefits to certain extent if their design allows.
		Most of Lokawiz HW have all the 1, 2 & 3 design aspects or at least two of them (in rare cases). These design aspects are potential patentable items and are under review for filing.
4	Combination 1, 2, & 3	In addition to benefits listed earlier, we get 1. Ability to build a wide range of solutions 2. Ability to scale post deployment and meet emerging solution needs
		Type 1 have almost none of these above benefits. Type 2 may have some but very limited in comparison.
5.	Firmware configuration	Firmware configuration to support diverse functionalities in a range of IoT use cases.
		Makes the device usable for even more kinds of application and their features requirements.
		Type 1 devices may have it in limited capacity. Most Type 2 devices have this in good capacity but Lokawiz design gives more options due to its design aspects listed above.
6.	Firmware upgrades	Firmware upgrades with the deployed devices.
		Support additional emerging requirement and smart features. Increased requirement serving capability of the devices.
		Type 1 devices may (high end) or may not (low end) support this feature. Type 2 devices normally support this to a very good extent. Lokawiz devices support this to at least equal extent to Type 2 devices and are extendible in this feature due to it Plug & Play and Production configurations.
7.	Application upgrades	Application upgrade in the user side to support additional features.
		Keep up with the emerging user needs in a solution.
		This is quite common feature in IoT solutions and both Type 1 & 2 based solutions support this since the changes belong to the software part. However, upgrades by changes in the application is limited by underlying hardware capability for which Lokawiz design opens much wider options & choices.

Caveats or Downside

All the above-mentioned differentiating benefits of Lokawiz design come with some small caveats.

They are in terms of slight increased overall unit cost of devices at low volume which are due to

1. additional configuration board parts and
2. additional interface parts on-board.

Normally, this cost increase is estimated to be with 2-4% in low volume (e.g. 100 units) production.

This increase in cost tend to zero out or become insignificant at high volume production (e.g. 100 thousand or a million units).