ModusEsse – Technical Founding Paper -Draft 1

Introduction
The next wave of Internet decentralization is underway. Built on the foundation of generations of mathematical and technological innovation in the field of cryptography and Internet networking. Blockchain technologies becoming the established backbone for decentralization. Self expression on the Internet has taken hold and now sensors add to the production of personal, environment and cultural data. These collective sensors are termed, the Internet of Things. In a personal sense, the term Quantified Self (QS) has been used to describe the use of this data for augmenting self intelligence, or wellbeing. This volume of personal data is growing exponentially and extracting intelligence in isolation or as a collective incentives scientific research to startup innovation to understand or extract meaning. This paper sets out how an AAE, an autonomous application environment technology can combine, blockchain, sensors and measurers (intelligence extraction) for individuals on a decentralized Internet.

AAE Protocol Technology
AAE (autonomous application environment) – a decentralized modular application run and deployment container. The following diagram summaries it basic architecture:
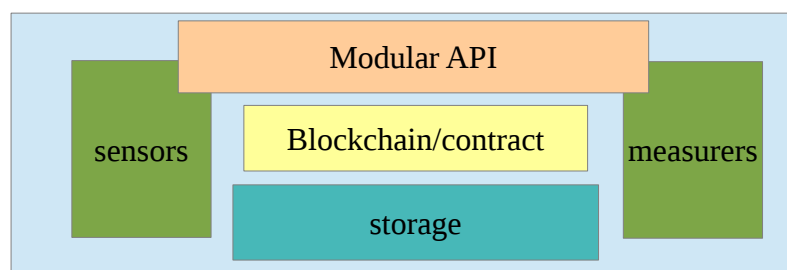
AAE Protocol container
The main function of the container is to provide a secure application run environment for any hardware . In bitcoin these are referred to wallets, with the core bitcoin and extra security wallets like https://bitcoinarmory.com/ .

Independent place where EsseCoins are created
A new esseCoin is made when sensor data combined with an agreed measure are concluded. Two types of Essecoins can be made.
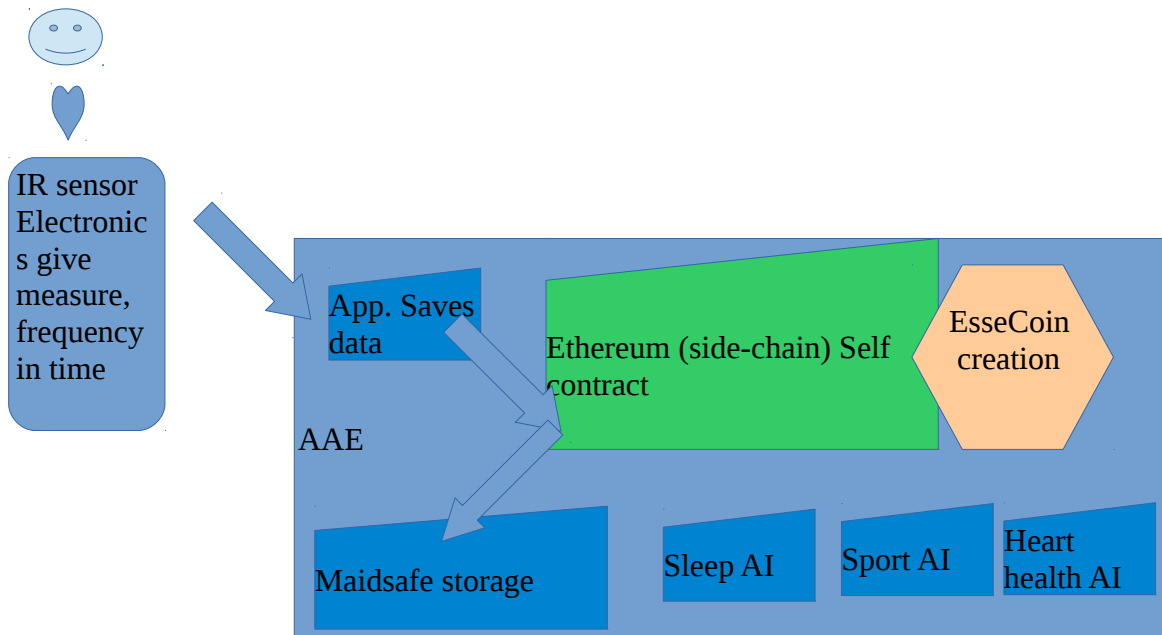
Self Contracts
Where an individual choose to record and put on the record their own sensor data. A self subjective value is put on this data.

Peer to Peer Contracts
Where to contracting parities accept to exchange data on the basis of an agreed independent sensor and measurement standard. To establish a subjective value with an incentive not to game or produce fraudulent or simply make up sensor data and measurment data, the esseCoin value will be set in conjunction with a traditional fiat or crytocurrency base monetery value contract. The logic being it is now costly for the peers to collude to make EsseCoins and thus establish a status of being a Trusted source of self data to exchange with.

# DataFlow - wearable sensor for pulse rate

Self Contract flow

IR sensor Electronics give measure, frequency in time

App. Saves data

AAE

Ethereum (side-chain) Self contract

EsseCoin creation

Maidsafe storage

Sleep AI

Sport AI

Heart health AI

Bockchain events:
1. First use of AAE
2. First use of Sensor + App.
3. Setting up Maidsafe or ther decentralized storage
4. AI modules providing data insights to AI to future simulations
5. Each flow of measure from the sensor (ideally sensor should have built in blockchains)

Peer to Peer contract flow

Peer 1

Peer 2

AAE

Ethereum (blockchain) Smart Contract

AAE
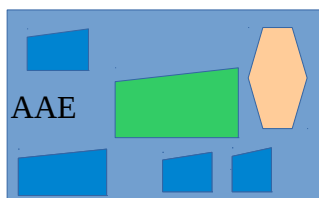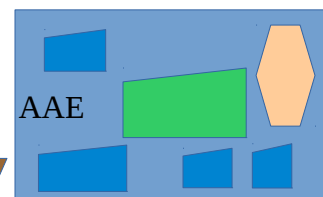
Fiat bitcoin (monetary value)
Measure (sensor + units)
esseCoin number + event

Modular API (application programming interface)

The primary building block for the AAE is the individual. All individuals will be free to independently perform self discovery of intelligence. The modular nature of the API allows the combining of multiple AAE for an individual or for those that want to combine self discovery on a Peer to Peer basis to aid the discovery of more complex collective problem solving. The AAE modularity also acts as the glue for existing decentralized technologies like storage and blockchain contracts and transactions.

Blockchain/Contract (smart)

The backbone of trusted decentralization comes from the blockchain. Many blockchains exist starting with currency(bitcoin) and now contract (ethereum.org) for the decentralization of law. The AAE will be compatible and use such technologies.

Storage

Each individual has the right to keep a copy of their life on the record. Decentralized storage technologies promises to provide unlimited and secure peer to peer access, e.g. maidsafe.net. The AAE will use such saving protocols.

THEmeaure

Sensors and Measurers are in effect the same fundamental concept, a means of recording reality. However its useful to categorize the Sensor as some independent hardware mechanism to record reality which Measurers use as the base ingredients from the Sensors to extract more value given any context.

Granularity of reality	Sensors	Measurement	Augmented Intelligence
Examples			
Movement	Accelerometer Units, metre per second Metre based on human creation of distance between two places in space and time.	Distance, time, speed, laws of motion physics What does this mean? Given context means anything. Measurers can take fundamental building senor data and combine with other data i.e. a specific context and extract value, i.e. create more data via Machine learning to AI. Example: movement in connection with loosing weight or bone strength or heart health or sporting achievement goal etc.	The individual is free to use a range of sensors, measusers and then to use that follow their own volition or put up as data in a future esseCoin contract peer to peer.

Sensors:
The ability to measure will increasing come from personal and environment sensors. The range and function of the sensors is vast and growing exponentially. The AAE will begin with 'light' data volumes that can be managed, heavier, voice, video data will follow.

Measurers
The sensors capture the data, but what does it mean? What self intelligence or collective intelligence can be extracted? The AAI will provide a place for a broad range of application from statistics, data mining, machine learning, AI or AGI to run.

Reward Measurers
Self and collective intelligence needs an incentive mechanism to direct evolution. Measurers will be rewarded when new discoveries are established ie rewarded with EsseCoins.
[need some mathematic formula for this. NB. Mining leads adoption in bitcoin, if we take a discovery rewarding then, that implies in the future, ie new knowledge can only be reward once established, but at the same time the individuals and society at large need a future looking mechanism to direct problem solving ingenuity eg. To sort my left knee pain to cure Cancer.]
Forward incentives and rewarding proof.

Proof of knowledge, science, it works
When to decide to reward a measurer? Bring in new knowledge. Forumla, deployment in code, sensor or feedback machinsim ie display, human machine interaction.
Problem, all will claim breekstrhoughs, or set low proof measures to game success.

EsseCoins
The cryptocurrency of the AAE. How individual, sensor, measurers, cryp0-stack use?

Fundamental Technology Challenges:
  – volume of data
  – integration with sensors
  – running complex measurer code
  – run any hardware environment
  – realtime – feedback visualisation augmentation, implant
  – Security, privacy.

How address each of these: see separate papers.

Open source
The code will freely available and governed by ModusEsse Foundation. Embracing decentralized technology tools, gitchain etc.

Developer adoption
Core – visionary crusaders, QS'ers, Engelbart followers

Sensors – wearables 2.0 leaders, kickstarter/indiegogo/crypto crowd funding starups, DIY, open source, medical, academia.

Measurers – data mining as service, AI, AGI, open source prediction projects, exist centralized QS as a

service website/apps.

Existing decentralized: bitcoin, ethereum, maidsafe, crypto communities.