Silver Wolf Wushu

Business Plan 2018

Table of Contents

Introduction	3
The Problem	5
Our Solution	10
Curriculum – Collegiate Degrees	12
Smart Garments – Sensors and Internet of Things	14
Our SAITO Application Software	15
Our HERON Application Software	36
For Parents and Physicians	40
Tai Chi Tools	41
Tai Chi Weapons	43
Genetics	45
Measuring Pain	46
Marketing and Financials	51
In the Future	58
Technical Challenges	58
Contact Information and our Website	59
Appendices including Research Goals and Costs	60

Introduction

On our Planet Earth hundreds of millions of human beings born with special needs due to genetic causes suffer pain, have poor health, lack a supportive social group and have no life goals. The negative impact on families and societies is profound. For decades those working at the junction of economics, epidemiology and education have made it a standard practice to measure the strength of a country or a society by how it treated its weakest – the old, the very young, the poor and the disabled. It has become clearer in the last several years that we humans are frail creatures - there are hundreds of genes implicated in, among other conditions, arthrogryposis, ataxia, autism, cerebral palsy, Down Syndrome, microcephaly, and thyroid disorders so it is common to speak of each disability having a spectrum of effects and symptoms. Some reasonable assessments are that now (1) nearly one million Californians, ten million Americans and 250 million humans on Planet Earth are somewhere on one of these spectra (2) for just the autism symptom there are more than 200 different genes implicated in nearly 100 named syndromes – in all about 1400 genes of interest to us (3) the genetic problems can be deletions, translocations, mutations, and repetitions (4) the genes are found on all 23 chromosomes with a few even in mitochondrial DNA (5) there are also epigenetic factors and (6) there are probably environmental influences as well.

There are no (zero) cures and no treatments. None. Nothing fixes DNA.

The result of poor diagnostics, ill-founded theories of causation, undisciplined analysis and inadequate appreciation of the complexities of psycho-active drugs has been that millions of families and tens of millions of lives have been devastated. If a young child in America is actually diagnosed with a syndrome in the autism spectrum, for example, he or she can look forward to 15 years of social isolation followed by ejection from the educational system at 22; desperate titration of three powerful drugs; sleep disorders; food allergies and digestive disturbances; seizures; heart challenges like bradycardia and tachycardia; self-injurious behaviors and the very early onset of diabetes and dementia. In many cases social stresses are exacerbated by expressive language disabilities – the special needs person cannot speak.

An alternative to dying quickly, cheaply and out of sight is to teach the venerable Chinese martial art of Tai Chi Chuan in order to provide

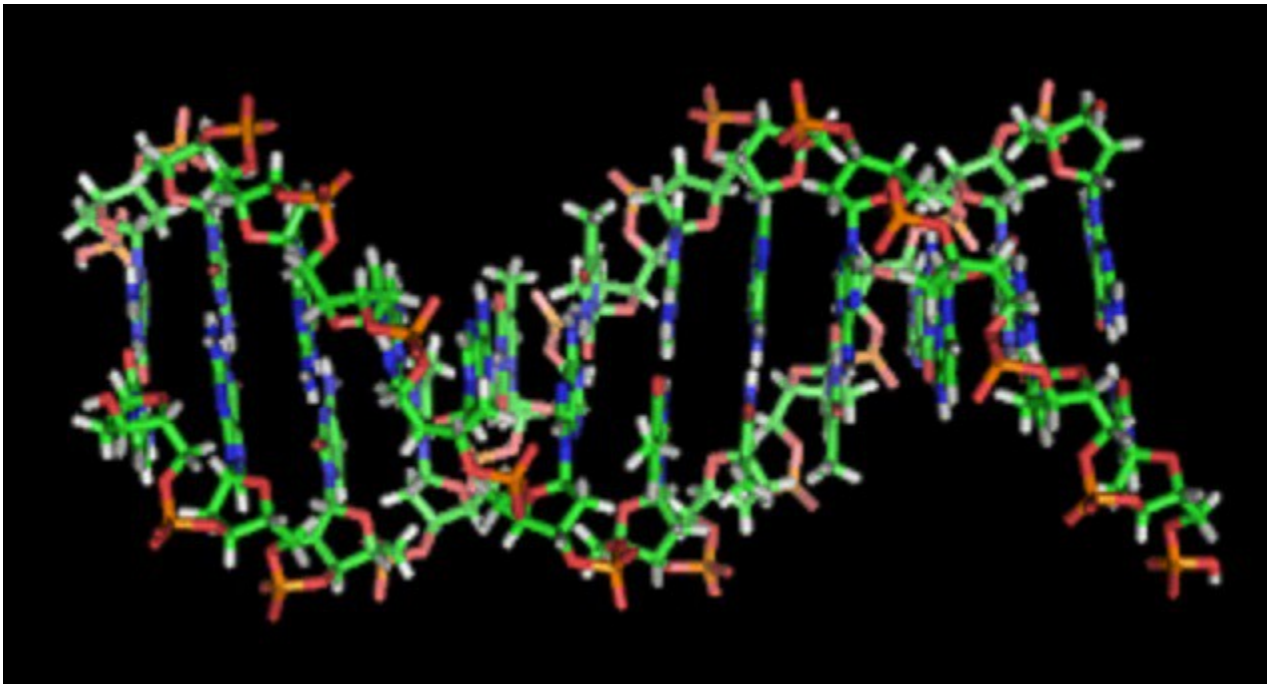
measurably better health,
membership in an inclusive social group,
improved inter-personal communications and
long-term life-goals.

It is something of a mantelpiece moment when a lineage-holding grandmaster poses with a family and their special needs child to document that the student correctly performed something the grandmaster's family has been teaching for centuries. But the real potential is to use Internet of Things technology – specifically sensors in smart garments – to produce daily digital scores so that parents and physicians have a statistical anchorpoint to make quantitative decisions about medications, food, sleep and logistics. If the Tai Chi scores go up, the other changes were right. In addition, by associating detailed genetic information with students it is possible to anonymously compare velocities of learning and lifestyle choices in a precise manner.

What is needed is a great deal of knowledge, a modest amount of money and "a kernel of courage". For an explanation of the phrase 'Yongqi de hexin' (勇气的核心) see Appendix A. Zhong Xuechao (below), noted for his mastery of many Wudang Mountain martial arts styles, remarked that he felt that disabled people displayed considerable individual courage just getting through each day.

The Problem

Modern humans have about 24,000 protein-coding genes located throughout our DNA on 23 pairs of chromosomes. Deoxyribonucleic acid is made of two long chains of nucleotides that wrap around each other to form a double helix.



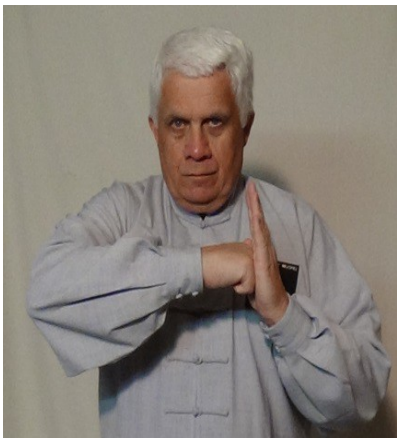
Each nucleotide is made up of a sugar called deoxyribose, a phosphate and a nucleobase. Usually, human DNA contains four nucleobases – adenine, cytosine, guanine and thymine - which are usually referred to by their first letters. The DNA code is composed of three adjacent nucleotides known as a codon – the 64 possible combinations are interpreted as one of 20 amino acids plus start and stop sequences. Typically, one encounters a start codon, some codons for various amino acids and a stop codon. Proteins like insulin or hemoglobin are built as sequences of amino acids. We are frail organisms – in many cases one deletion, one mutation (just a change from one amino acid to another), one tri-nucleotide repeat (usually three adjacent nucleotides repeat as a group) or one translocation (a section of DNA moves from its correct location on the chromosome to another location on the same chromosome or on a different chromosome) will have devastating results. To complicate matters, it is frequently the case that a gene will influence or control dozens of other genes.

The human genome contains about 3 billion base pairs. Human chromosomes are numbered roughly by length so chromosome 1 contains about 300,000,000 (300 hundred million or 10%) base pairs, chromosome 21 has 48 million base pairs and chromosome 22 has 49 million base pairs. Chromosome 23 normally comes in one of two configurations: XX (female) or XY (male). The X chromosome typically contains 155 million base pairs while the Y chromosome contains 59 million base pairs.

When there are more than a pair of chromosomes the condition is known as a full or partial trisomy. The best known is Down Syndrome which is the result of a chromosome 21 trisomy – long before birth there are three whole copies or two whole copies and one partial copy of the chromosome. In addition, there are conditions known as mosaics where, in this case, portions of chromosome 21 attach to another chromosome.

Some aspects of what became known as Down syndrome were described in the early 19th century (1838 and 1844) – the reference description was published by John Langdon Down in 1866, but the genetic cause was not discovered until 1959. Nearly sixty later several new variants of Down Syndrome were recently discovered, and, disappointingly, it remains unclear exactly which of the 300-odd genes on chromosome 21 are directly involved in Down syndrome and what the exact biochemical pathways impacted are.

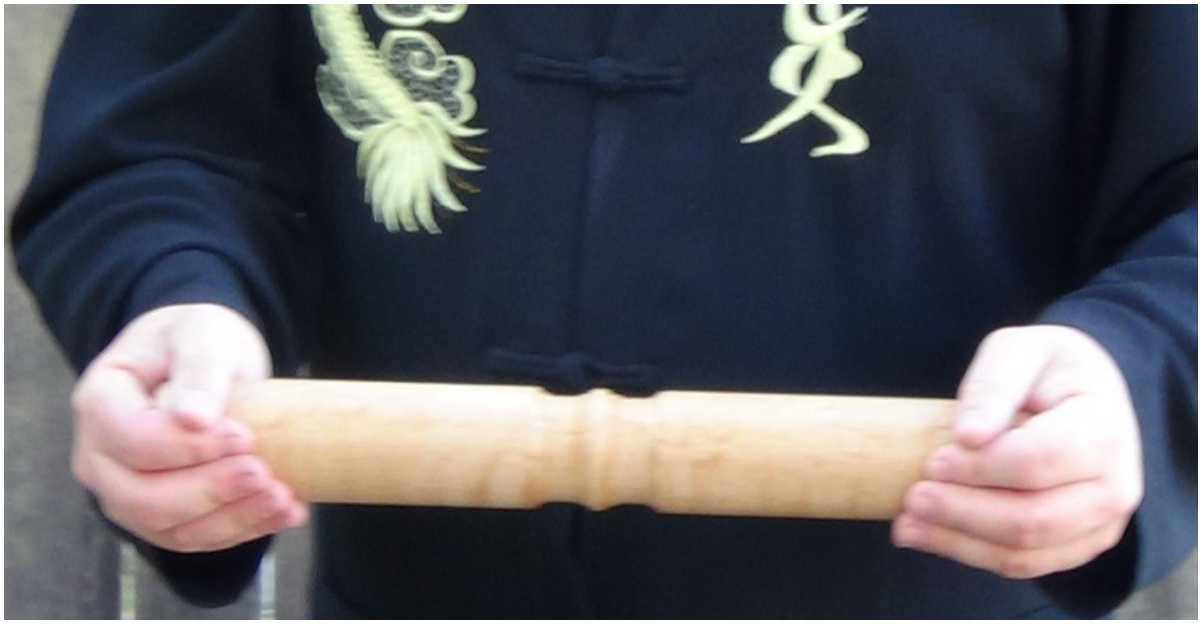
Arthrogryposis multiplex congenital is usually known simply as arthrogryposis, and involves abnormal fibrosis of muscles especially near joints. The shortening and stiffening of muscles typically results in an inability to flex or extend limbs. Different types of arthrogryposis may involve most of the body, just the legs or just the arms. Arthrogryposis may not necessarily be symmetric, and may involve heart defects, cleft palates, eye abnormalities and other serious challenges. From left to right below: the formal salute pose that begins and ends each class; a student trying to get the left hand open and the right forearm parallel to the floor; another student's hands about as open and relaxed as they get.



Ataxia also has many forms – the most commonly encountered are gait and balance difficulties, slurred speech, and abnormal eye movements. Friedreich's ataxia was one of the first syndromes in this category to be studied – it was described in the 1860s and was finally linked to a GAA nucleotide repeat on chromosome 9 in 1996. While a great many ataxia syndromes are genetic, similar symptoms can be caused by physical damage to the inner ear, the cerebellum or nerves connecting the eyes or ears to the brain. Most ataxias are progressive – there is increasing muscle weakness, plantar arch problems in the feet, diabetes, carbohydrate intolerance,heart disorders and mobility loss. In some instances it has proved efficient for a student with ataxia to separate a movement into upper body and lower body requirements. This allows some focus on learning the upper body (trunk, head and arms) movements and structure before tackling coordination with the legs and movement of the feet. In particular, there has been measurable improvement in velocity of learning for

some students when they first practice upper body movements while seated.

Cerebral palsy is a very complex group of dozens of syndromes with an equally complicated set of causes. We do not find the generic description very helpful, but in some particular cases students with a very painful arthritis in their arms find considerable relief and increased flexibility after practicing with the tool known as the Tai Chi bang.



Like arthrogryposis and cerebral palsy and, to a certain extent, Down syndrome, the autism spectrum has a bewildering array of secondary symptoms including seizures, food allergies, heart challenges like tachycardia, and onsets of diabetes and dementia decades before the general population. Generally, there are three symptoms that are more or less unique to autism: self-injurious behaviors, insistence on repetitive behaviors in themselves and others, and expressive language disabilities (cannot speak). We have to be very mindful that the various techniques and weapons integral to Tai Chi Chuan and other martial arts are not directed by students against themselves. We take ruthless advantage of a strong inclination to repeat daily routines – in fact, we strongly prefer to minimize variance in order to simplify the analysis for parents and physicians. Because most students in the autism spectrum have a very limited spoken vocabulary (average: 360 nouns, a few adjectives and about a dozen verbs) and often cannot speak, teaching tends to ignore the Socratic method of asking questions. For the most part, the teacher does not need to speak because the bulk of communication is physical gestures, and the emphasis is on heart to heart.

Our Solution

In many cultures and countries exercise routines are taught to encourage individual physical health. It is frequently the case that those routines and their extensions are useful for self-defense and for military training. That was certainly the case in China where, for thousands of years, hundreds or even thousands of martial arts have been used for such purposes, and many of the techniques and technologies also provided physical fitness for civilians, clergy and seniors. Virtually all of the Chinese martial arts have canonical sequences of movements known as sets or forms. It is very common for there to be variations in the sets or in their contents that are collectively known as a style, and these styles usually are named after a location such as Hebei Province or a founder's family name.

In the martial art of Tai Chi Chuan there are six major styles – mostly named after a founding family. By all accounts, the oldest style is that of the Chen family of Wen County in Henan Province in China, so our curriculum resembles what a neurotypical collegiate athlete concentrating in Chen Family style would study at a university in China.

The constraints imposed were (1) performance-based (2) at least sixteen distinct sets all with international judging standards (3) digital lesson notes for each movement in each set (4) explicitly approved by an authorized international organization and (5) all teaching done at the master level.

Constraint 1 was interpreted as students would be filmed and graded on a daily bases with weekly or bi-weekly films to be sent to external reviewers. Those reviewers would not know that the students have disabilities. After some discussion, it was agreed that not all students would be required to perform publicly in formal silks, but that such participation would be encouraged. Decisions about the curricula took more than two years and tens of thousands of emails between martial arts experts and medical specialists primarily located in Canada, China, Ireland, Peru, the United Kingdom and the United States. It is not unlikely that further discussions will be needed as the types of students encountered increases. Punching and kicking make up about one percent (1%)

of what is taught in martial arts. The other 99% is recognizing courage and being courageous.

Notes:

1. The two curricula have been approved by the degree-granting university and by, in this case, Grandmaster Chen Zhenglei. We would likely need to connect with additional local universities.
2. A neurotypical Chinese university student would likely include a course in Tuishou, a form of light sparring sometimes known as 'pushing hands'. Generally, proficiency there is judged by tournament results. There was widespread agreement that such a course would be a very poor selection for the intended special needs students.
3. Likewise, a neurotypical Chinese university student might prefer a set known as Fajin 42 to Xiao Jin. Fajin 42 is rarely taught – at this writing only by Grandmaster Zhu Tiancai and then only very few times in decades. There are no judging standards.
4. The current consensus is that either of the Competition 42 and Competition 56 movement forms can be reluctantly substituted for Xiao Jin even though both the competition forms are synthetic hybrids that include movements from Sun, Wu, Yang and Chen styles.
5. A bachelor's degree curriculum for Yang style Tai Chi Chuan was constructed and approved. There are not enough courses to justify a master's degree. There is currently no intention to teach the Yang style curriculum.
6. It may be possible to construct a bachelor's degree curriculum for one or more of the Sun and Wu and Zhaobao styles Tai Chi Chuan. There are not enough courses to justify a master's degree. There is currently no intention to teach those styles.
7. A bachelor's degree curriculum for Hebei style Xing Yi Chuan was constructed and tentatively approved. There are not enough courses to justify a master's degree. There currently is no acknowledged international organization for the style and there is no intention to teach the Hebei style Xing Yi Chuan curriculum. It is currently challenging to

construct a bachelor's degree curriculum for the Dai, Shang or Shanxi styles of Xing Yi Chuan.

8. A bachelor's degree curriculum for Cheng style Bagua Zhang was constructed and approved. There are not enough courses to justify a master's degree. Due to an inordinate fondness for the unique weapons of this style, it is very likely Bagua Zhang sets will be taught as weekend seminars, but there is currently no intention to teach the Cheng style Bagua Zhang curriculum.
9. For the most part, many of the great external arts such as Northern Shaolin and Hung Gar are so rich in material that curricula for a master's degree could easily be built. Aside from a very few exceptional individuals, these arts are not good choices for special needs students.

Our Chen Family style Tai Chi Chuan curriculum for a bachelor's (BA) degree is

1. bowing and saluting; seated WuJi style meditation, standing WuJi style meditation; traditional Chen family warm-up exercises; and additional exercises known as silk reeling
2. unarmed sets: 18 Movements, Lao Jia (= Old Frame, the signature set) and Cannon Fist
3. weapons sets: double batons, single saber, single sword, spear and staff (eyebrow height)
4. Tai Chi tools: ball, bar and ruler (see the appendix for images)
5. Qigong sets (compiled by the Chinese Health Qigong Association): Ba Duan Jin (Eight Brocades); Yi Jin Jing (Tendon Washing); Wu Qin Xi (Five Animals Exercises); Liu Zi Jue (Six Sounds Breathing Exercises)

The Master's degree (M.A.) curriculum for Chen Family style includes:

6. unarmed sets: Xin Jia (New Frame) and New Frame Cannon Fist, Xiao Jia (small frame)
7. weapons sets: double sabers, double swords, halberd, long (3 meters) pole
8. Tai Chi tools: bang, bent bang and long bang (see the appendix for images)
9. Qigong sets: Da Wu (Joint flexion); Twelve Step Daoyin (Health

preservation); Shi Er Duan Jin Yin (advanced sitting exercises); Taiji Yangsheng Zhang (a zhang is a wooden stick 48 inches long) and Mawangdui Daoyin Shu (therapeutic stretching).

Learning Modes and Homework

Assistance for people with special needs in America varies by age and location. Except for some medical interventions such as surgery for club feet, heart defects and gastrointestinal complications, there is nothing for children aged zero to four. It would be useful to have some sort of therapeutic pre-school program, but neither we nor anyone else has such a project planned or active. Most special needs people age 5 to 21 obtain services from their local school district. These arrangements are formalized in a document called an Individual Education Plan (IEP). Approximately one child in seven in America has an IEP. The format and contents of IEPs can vary by school district and change dramatically by city, county and state. Most special needs people age 22 and older have a similar document called an Individual Behavior Plan which is a contract with a city, county or state social services agency. Our SAITO application software produces text for inclusion in IEPs and IBPs.
There are three learning modes:

1. the **remote** student watches videos on the internet or transfers them to a DVD or equivalent. Families may or may not send contributions.
2. the **subscribing** student watches videos on the internet and is sent DVDs of the curriculum. The student records his or her performances and sends the recordings to be graded. There is no guarantee of grading turnaround time currently in place. The student would expect to receive individualized homework regardless of whether genetic information is provided. It is expected that a nominal monthly fee would be charged for such students.
3. the **in-person** student attends a physical classroom with one or more qualified teachers two hours per day at least five days per week. This student receives daily scores in real-time as well as individual homework, and may participate in formal events.

Were there an expansion to adult day care the general format for the 7.5 hours would be a two hour class, cooking (one hour), lunch (30 minutes), calligraphy (one hour) and another two hour class.

Traditionally, instruction by an unqualified teacher, whether for pay or not, is actively discouraged. That said, it is important to lower the barriers to starting a school where there is demand.

Internet of Things, Sensors and Smart Garments

We plan to use seven types of sensors:

1. biometrics – fingertip scanners are used to confirm attendance – both entries and exits
2. accelerometer - recent communications with researchers at Brigham and Women's Hospital (affiliated with Harvard Medical School) have convinced us that measuring head sway during sitting and standing meditation is a good practice. While the accelerometer itself should not be a problem, whether most or all students will briefly tolerate a cap or visor remains to be seen.
3. wrist-based bio-sensors – given the prevalence of seizures, tachycardia and overheating we are hopeful that smart watches that do not tell time will be tolerated by students. Currently, the best (and perhaps only) location for sensors reporting blood pressure, heart beat and temperature is the wrist. An accurate and non-invasive blood glucose sensor may be available in the future.
4. foot pressure – specifically useful for students with ataxia and some versions of arthrogryposis, and likely useful for all students as a measurement of balance. These pressure sensors would be located under mats placed on the floor near the individual student's chairs
5. seat (hip) pressure- specifically useful for students with ataxia and likely useful for all students as a measurement of balance. These pressure sensors would be located under mats placed on the seats of the individual

student's chairs.

6. Location (x y z coordinate) sensors in a garment – for centuries martial arts teachers and students in the various Taoist traditions, typically associated with the Wudang Mountains of China, have worn a garment known as a pi sha (examples shown below). As these garments are by design light and flowing we have high expectations that students will like them.
7. Temperature sensors primarily on limbs to measure effort and pain
8. Currently, the various sensors transmit data several times per second to one or more hubs which are small computers somewhat similar to an iPad. Hubs send data to one or more servers which are, in our case, computers with more processing power and access to multiple displays. At various times during the class the different sensors would be reporting data to hubs: biometrics during sign-in and sign-out; head sway and foot/hip pressure during sitting and standing; bio-sensors all class long and heat and location sensors when students are practicing or performing.

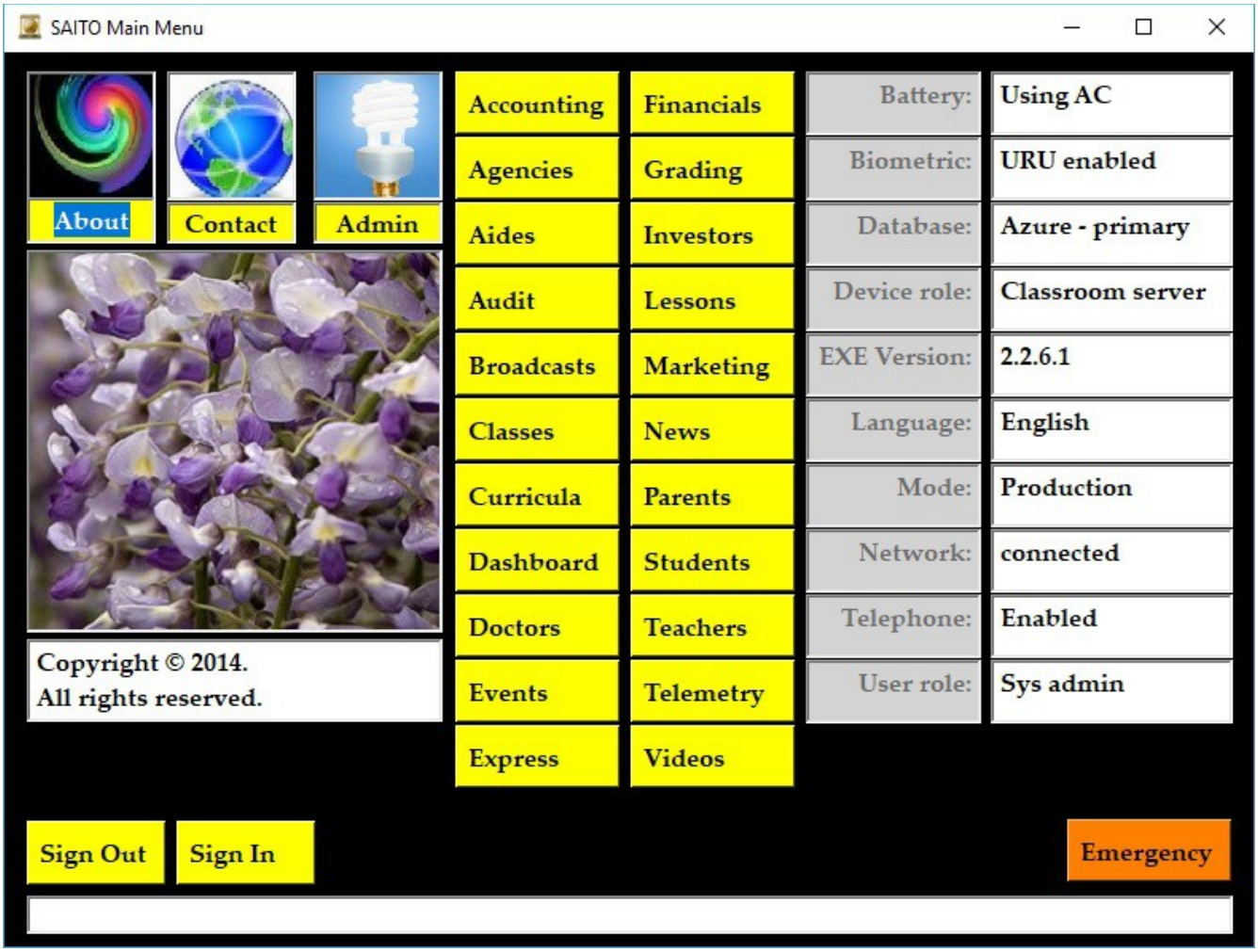


Software Infrastructure

Our supporting software, code-named SAITO (an acronym, and Japanese surname meaning 'wisteria') is already almost 500 Windows forms and 200,000 lines of dot net code with a complicated relational database. The horizontal challenges ahead are to start and maintain economically sustainable schools

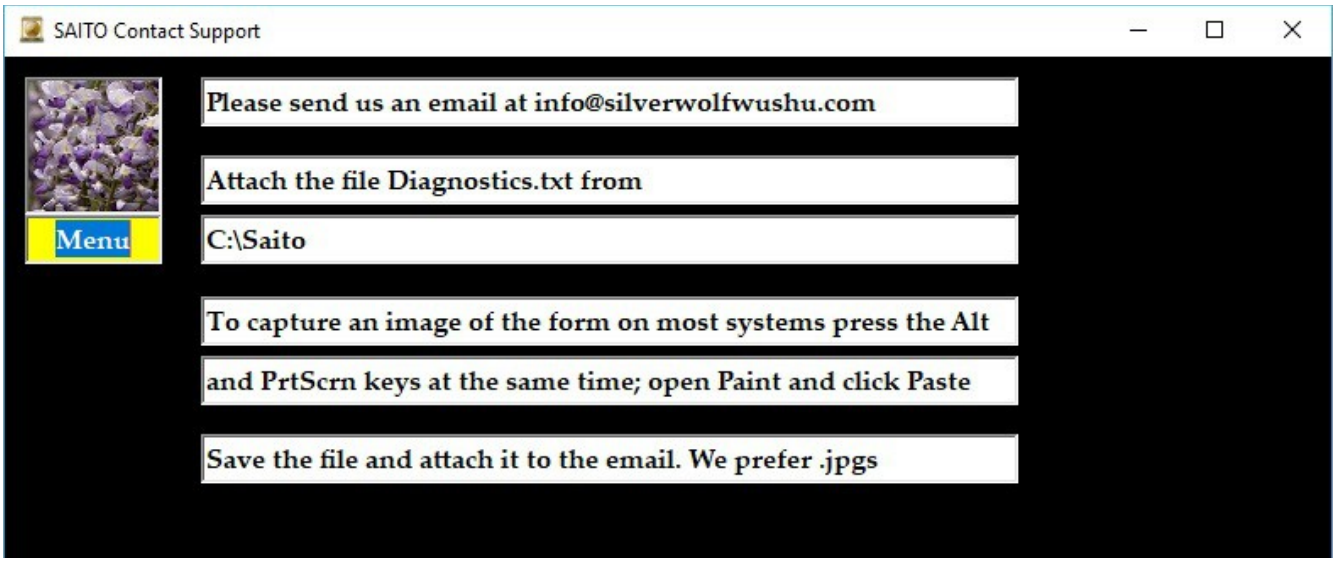
staffed by teachers who have integrity, compassion and courage. The vertical challenges ahead are to consider expansion from 120 minute daily classes to adult day care and clustered group homes. We are aware that nearly two million Americans are home-schooled.

Some screenshots from the SAITO application follow



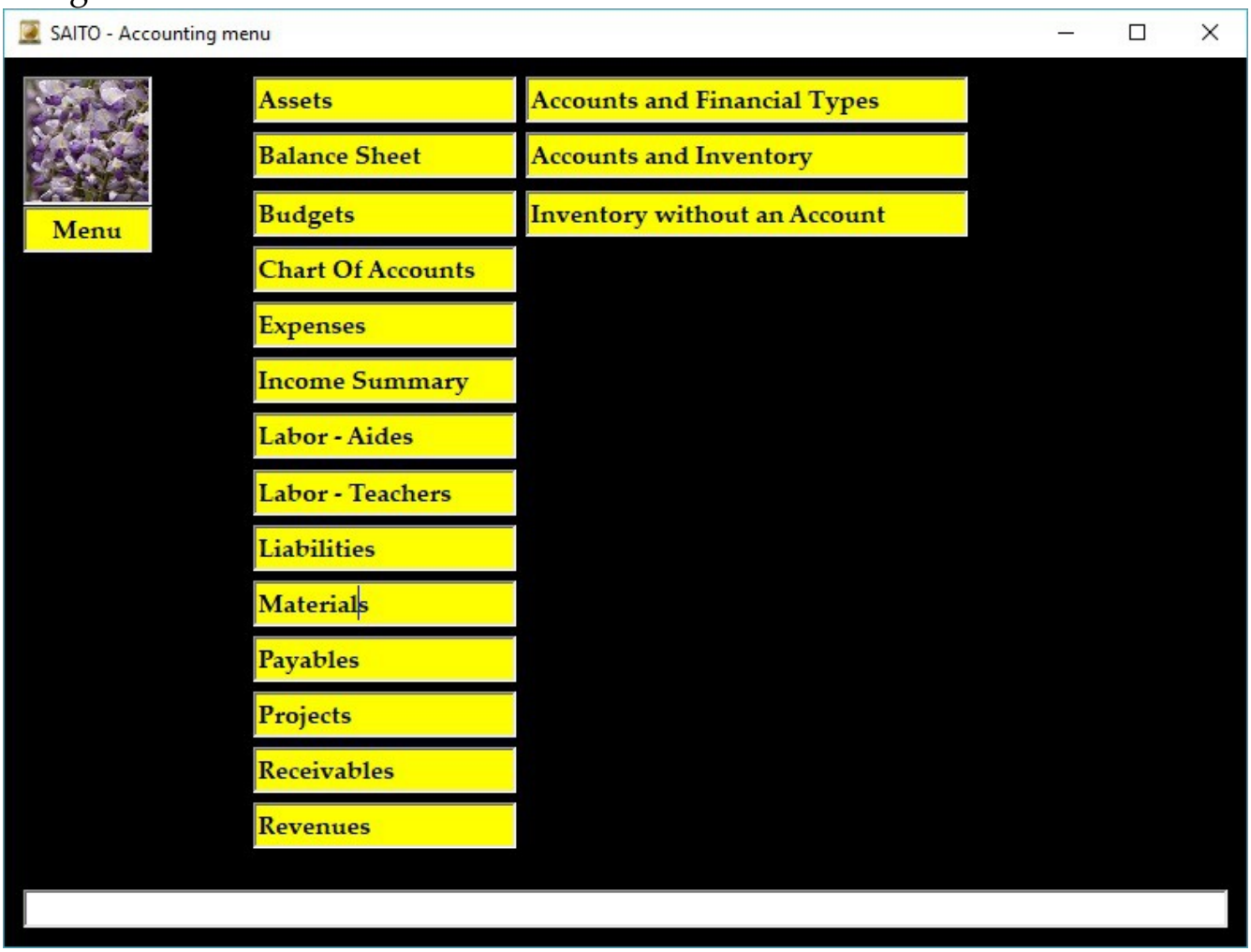
The main menu – among other things, the colors can be adjusted by a user. In the examples gray will be used for labels, white for read-only (disabled) text, yellow for enabled text (one can click the area or perhaps type into it) and black for the background. By convention, SAITO forms are 800 pixels wide by 600 pixels high. On the main menu the two columns to the right in gray and white are used to provide status.

Our About form

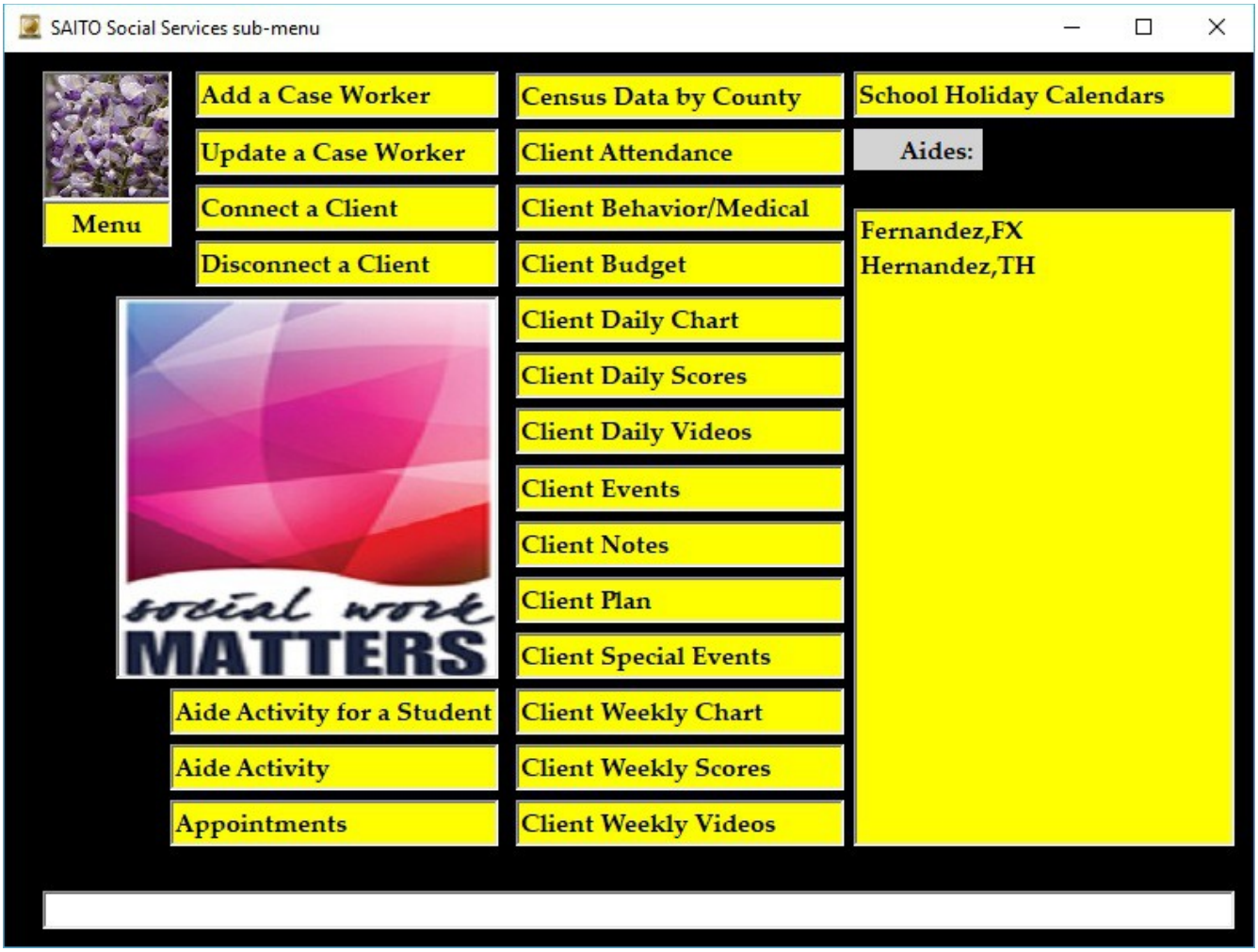


Our Contact form – for teachers using the application as opposed to customers

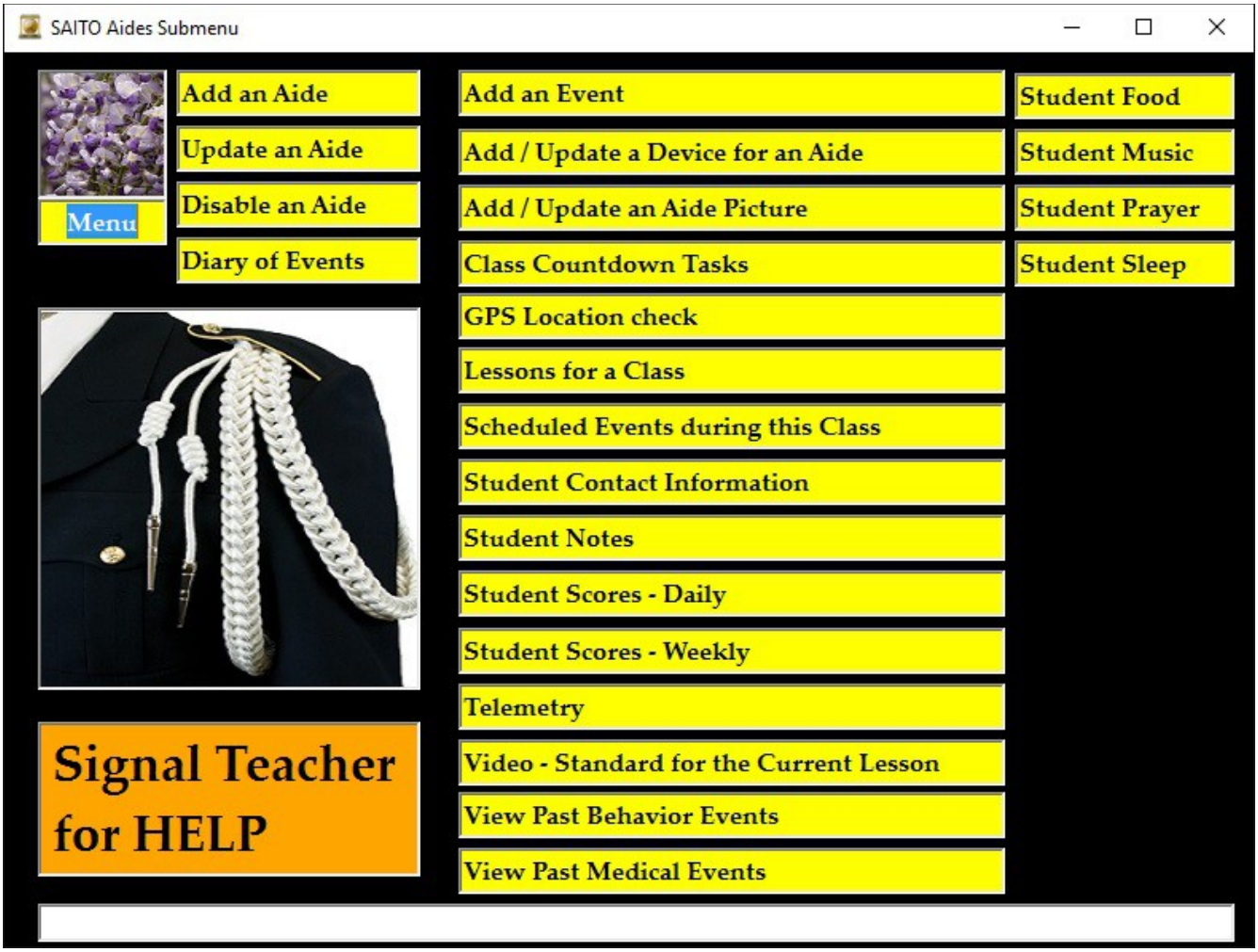
using the website



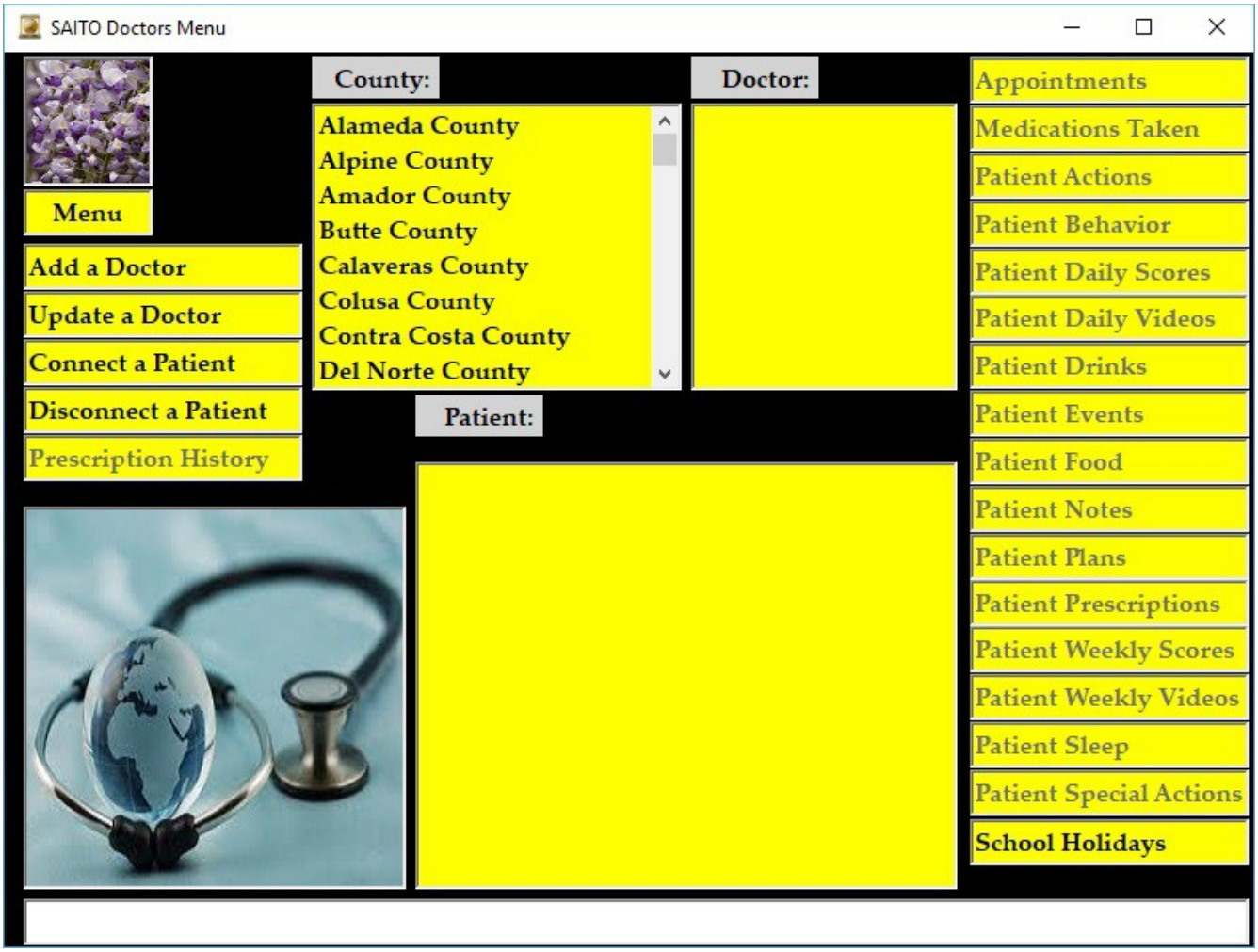
The accounting menu – we use the Small Business Administration chart of accounts by default



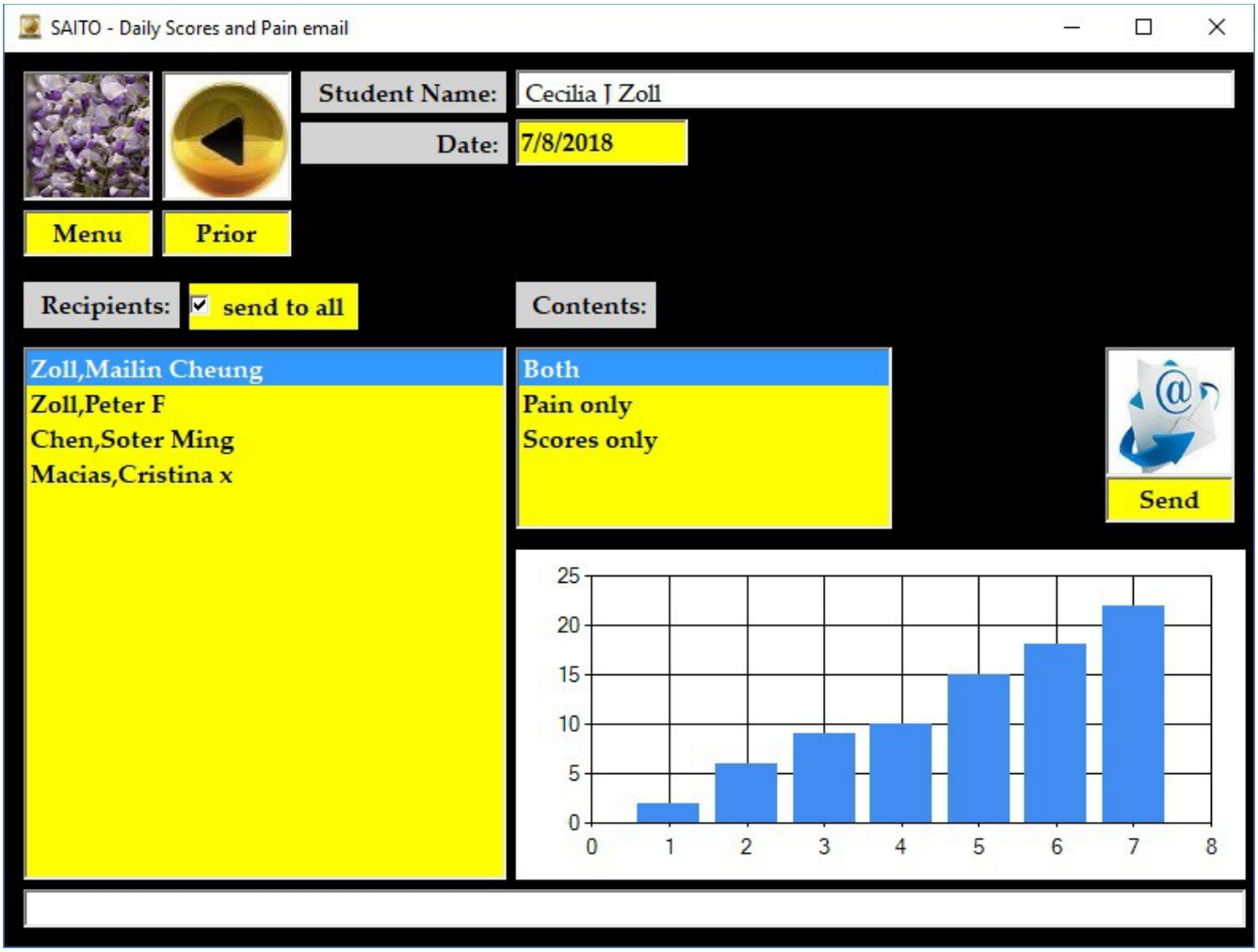
The social services agency menu. Their clients are our students. Aides are usually hired by the agency and are minimum wage workers with few qualifications.



We would expect classroom aides to be interacting with a copy of SAITO while in class. The GPS location check is for verifying student (as opposed to aide) location. Telemetry refers to measures of student activity, specifically bio-sensors and temperature (=pain). Use by aides of their own phones or computers is actively discouraged both to safeguard the school's network and to prevent distraction.

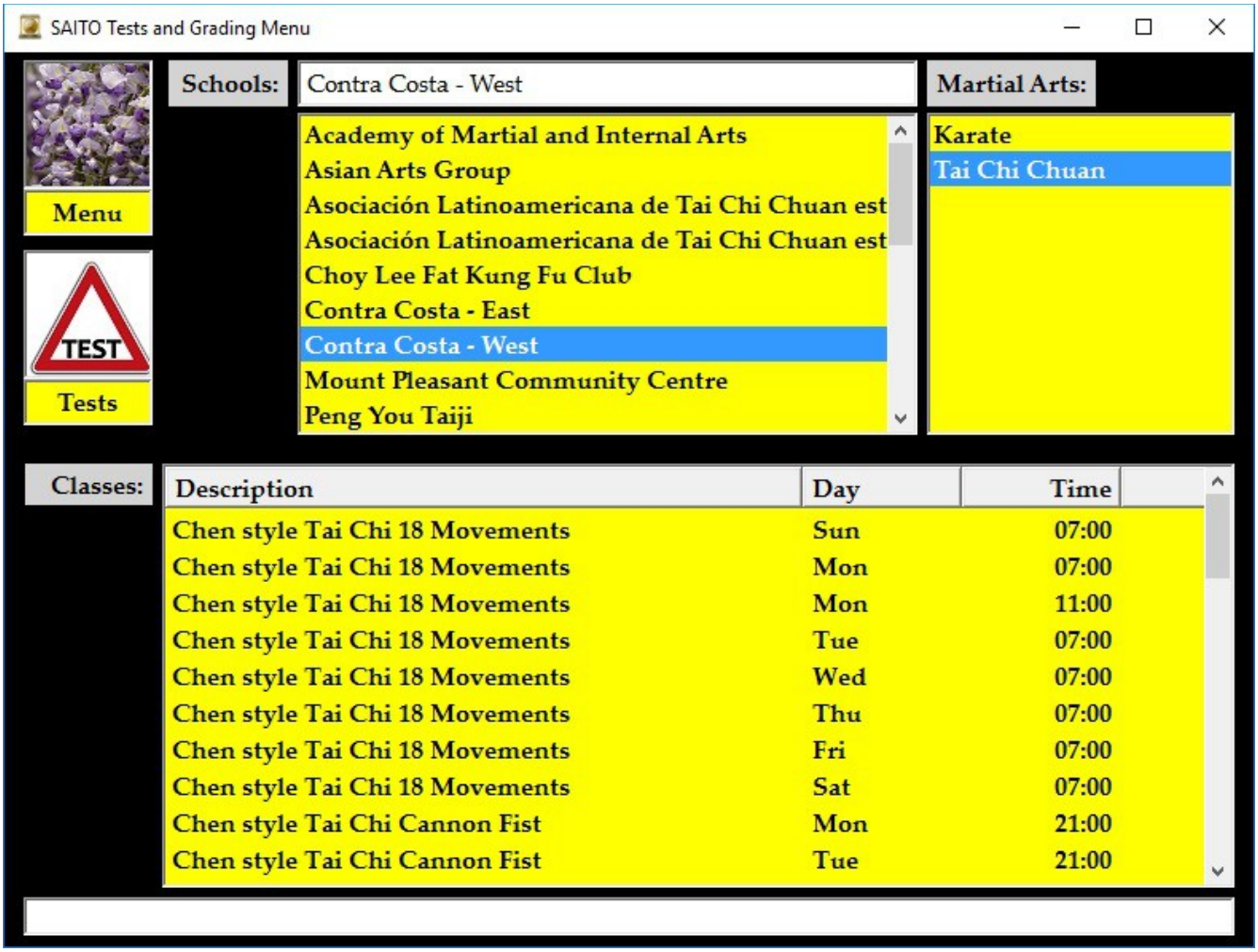


For doctors, their patients are our students. With family permission we would send either daily scores or weekly summaries to designated physicians and social workers as well as parents.



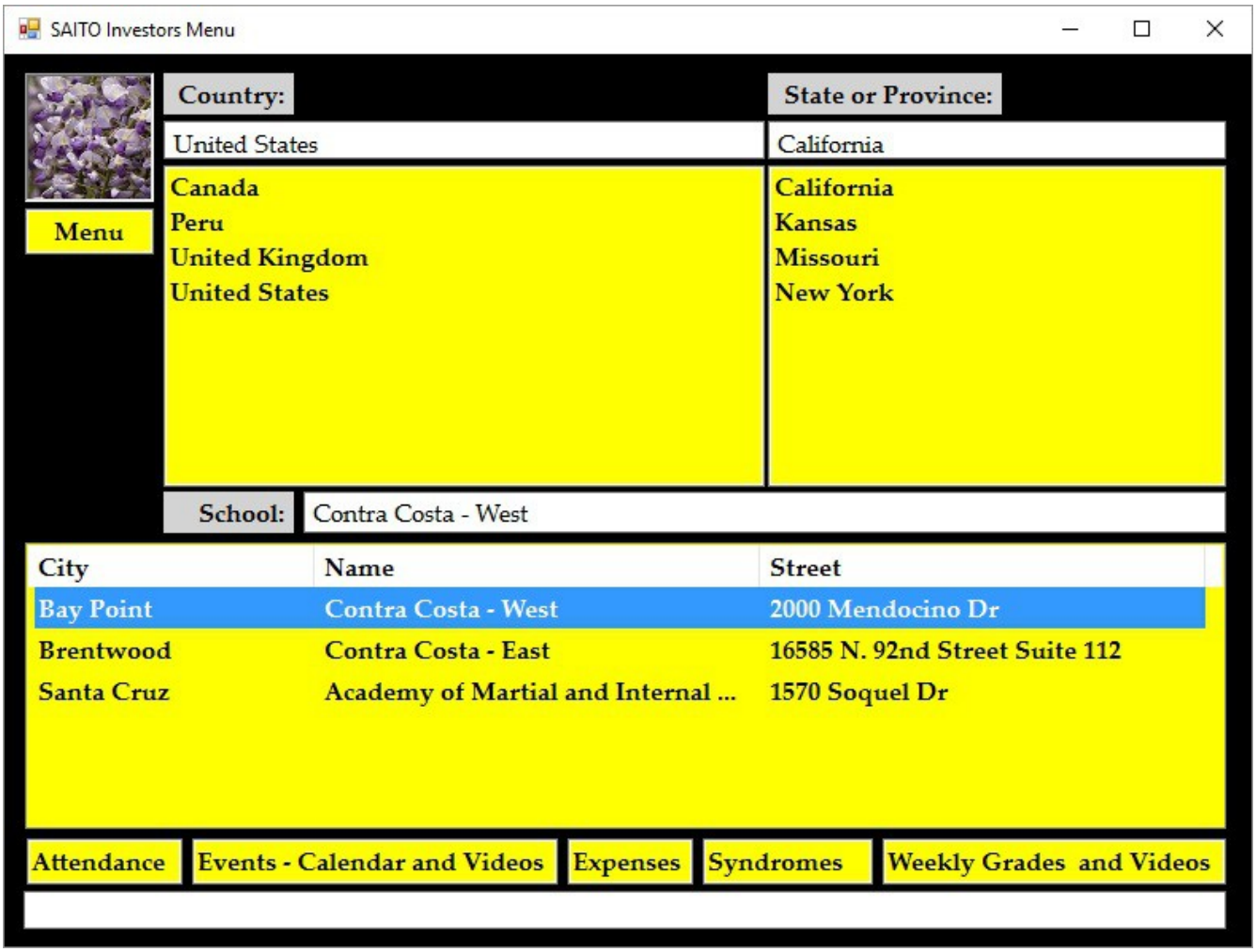
On the form above the email to the parties on the left will contain the graph (lower right) of the week's aggregated velocities of learning (blue bars getting larger is good) and detailed pain telemetry and scores by set.

The financials menu



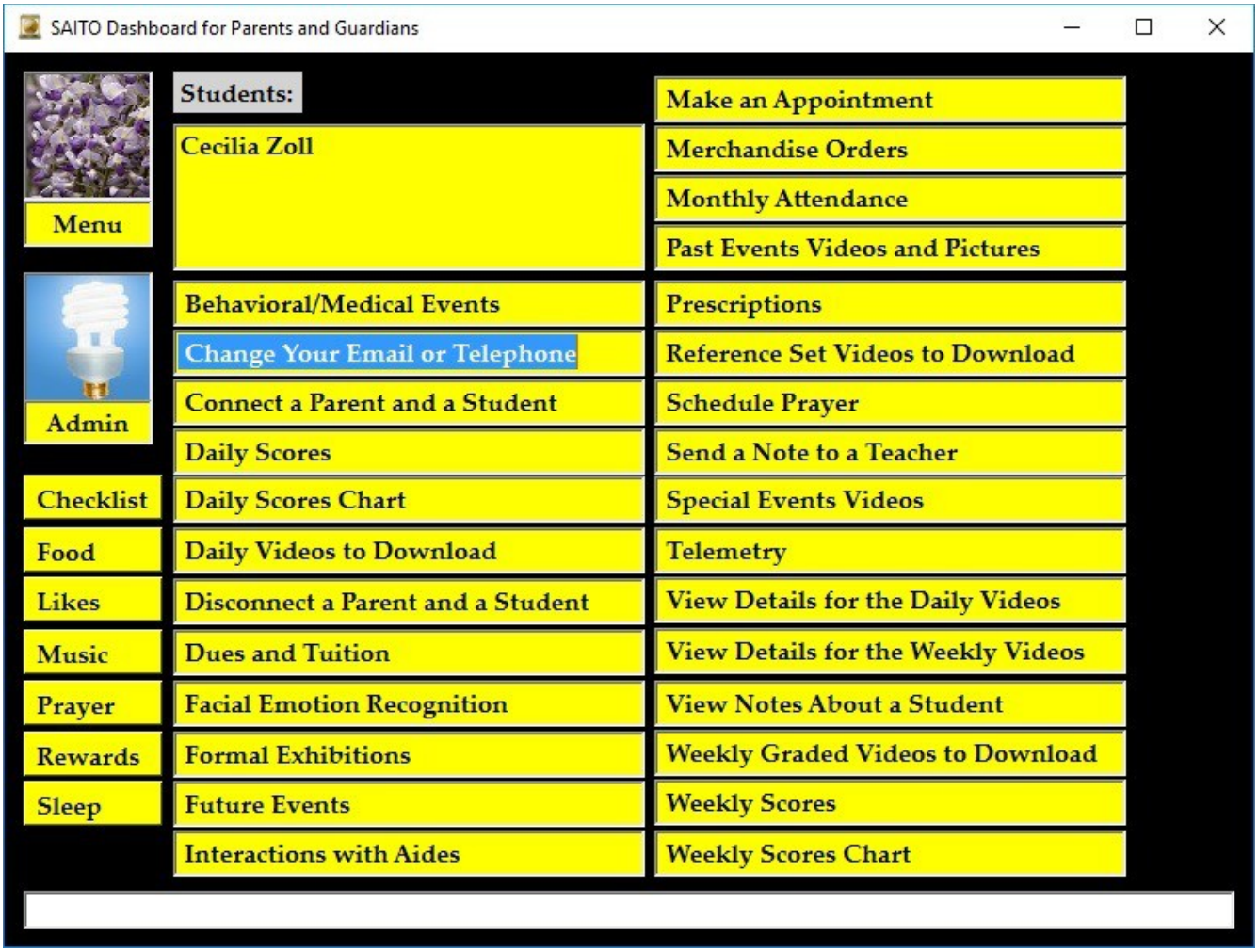
The grading and testing menu. Grades are given daily. Tests are filmed.

Generally, we would expect a school to own between $30,000 and $50,000 worth of inventory in the form of clothing, video, weapons, accessories and equipment.

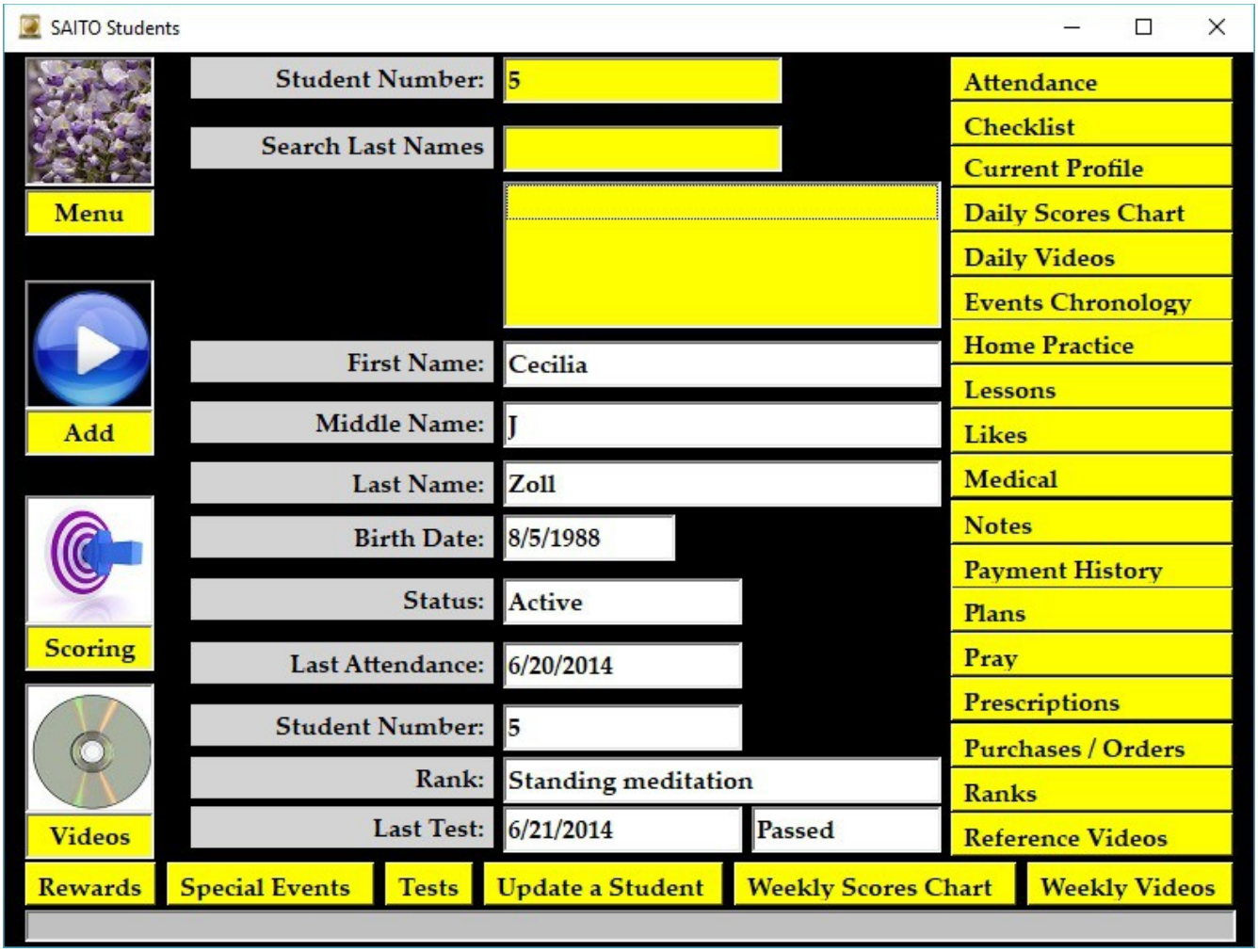


The investors menu – a quick but thorough check on how a school is doing

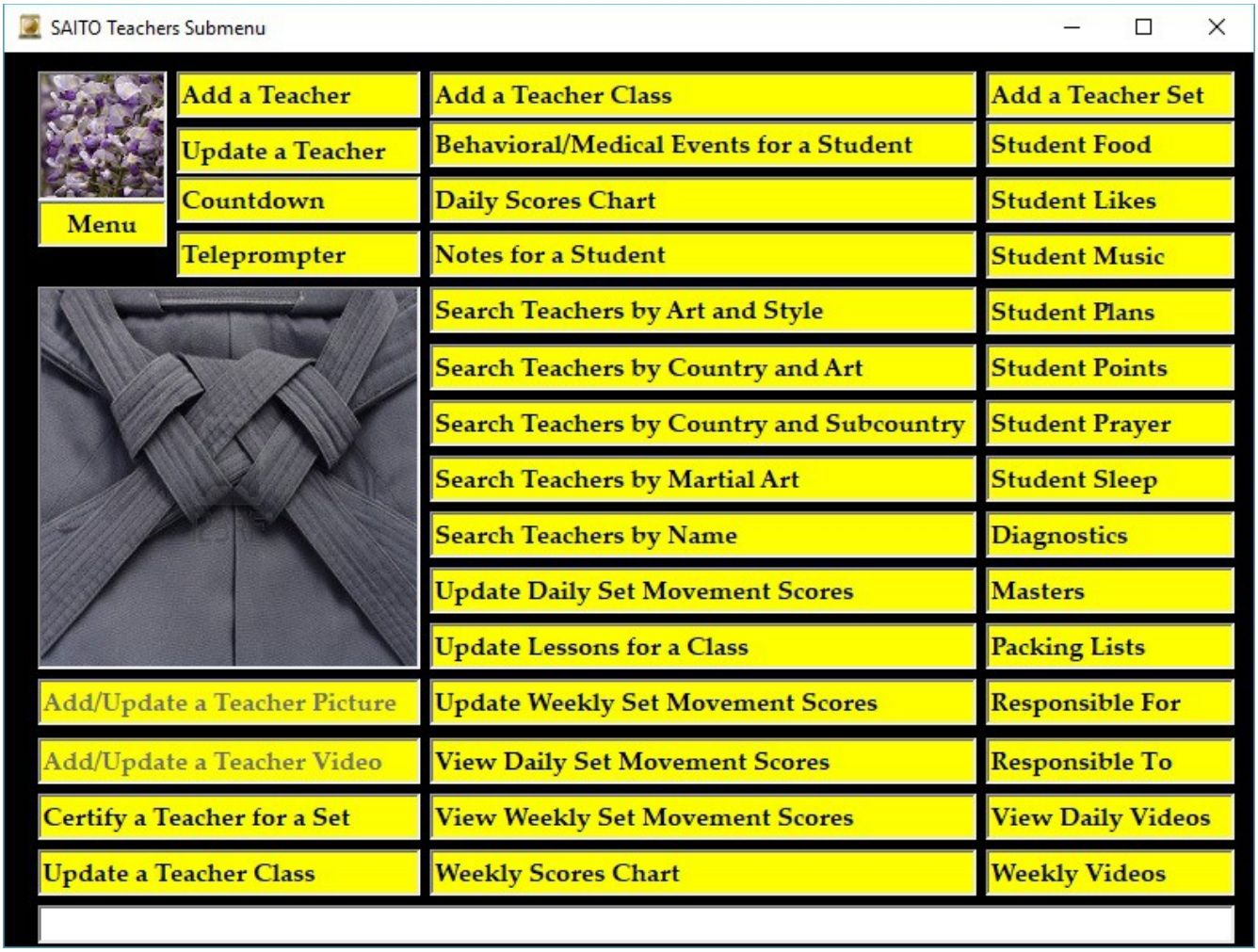
Although similar materials would be used and shared by different schools, marketing is largely geographical. For example, a presentation about the technical details of buying a saber could be used by any school with little or no modification. A presentation advertising a seminar in Wudang style Eight Immortals staff would need different dates and locations depending on whether the seminar was simulcast or attended in person. A presentation to a social services agency in Kansas would differ in some details from one done for parents in South Carolina. Generally, in SAITO marketing is directed at urban areas as that is where the most people, and, hence, the most potential students, are. However, parents wanting to start a school located to reduce daily transport distance would be fully supported.


SAITO Dashboard for Parents and Guardians
Menu
Admin
Checklist
Food
Likes
Music
Prayer
Rewards
Sleep
Students:
Cecilia Zoll
Behavioral/Medical Events
Change Your Email or Telephone
Connect a Parent and a Student
Daily Scores
Daily Scores Chart
Daily Videos to Download
Disconnect a Parent and a Student
Dues and Tuition
Facial Emotion Recognition
Formal Exhibitions
Future Events
Interactions with Aides
Make an Appointment
Merchandise Orders
Monthly Attendance
Past Events Videos and Pictures
Prescriptions
Reference Set Videos to Download
Schedule Prayer
Send a Note to a Teacher
Special Events Videos
Telemetry
View Details for the Daily Videos
View Details for the Weekly Videos
View Notes About a Student
Weekly Graded Videos to Download
Weekly Scores
Weekly Scores Chart

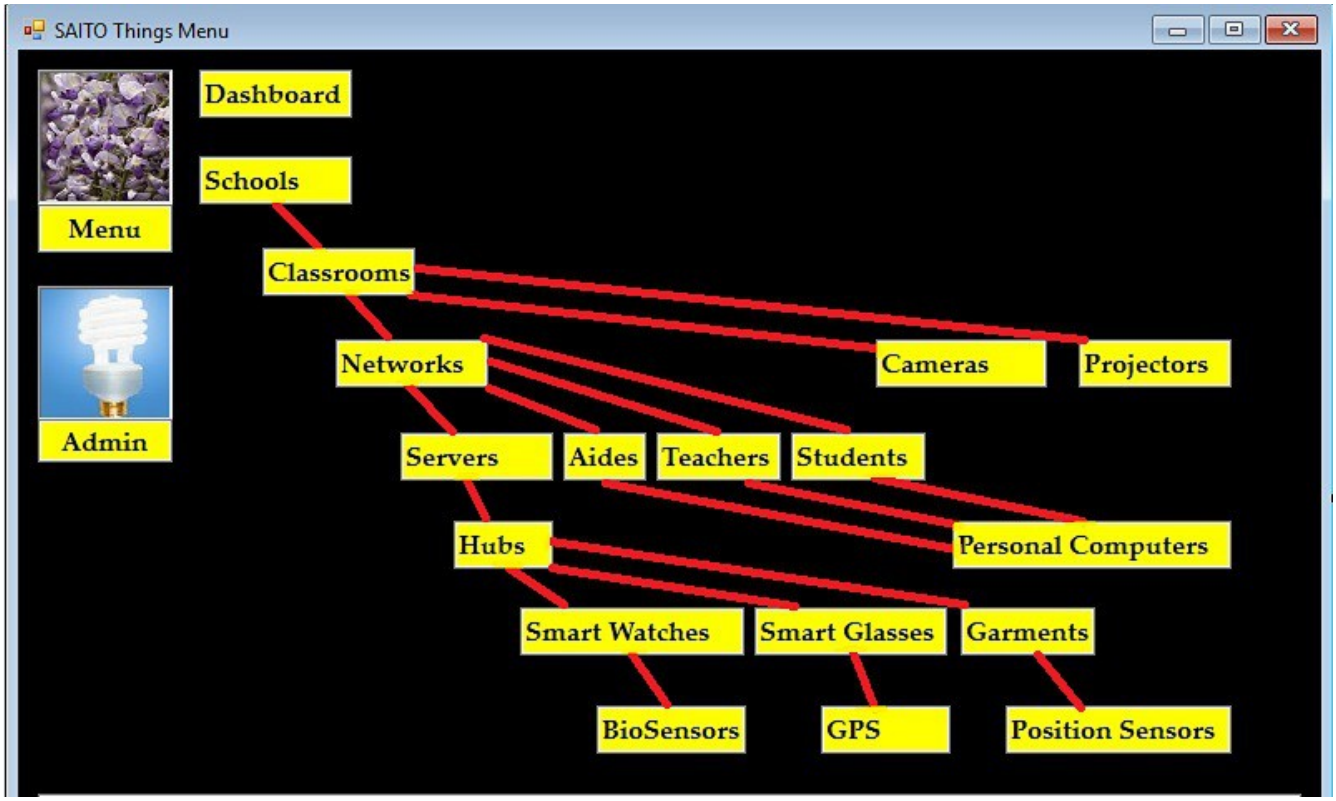
For parents



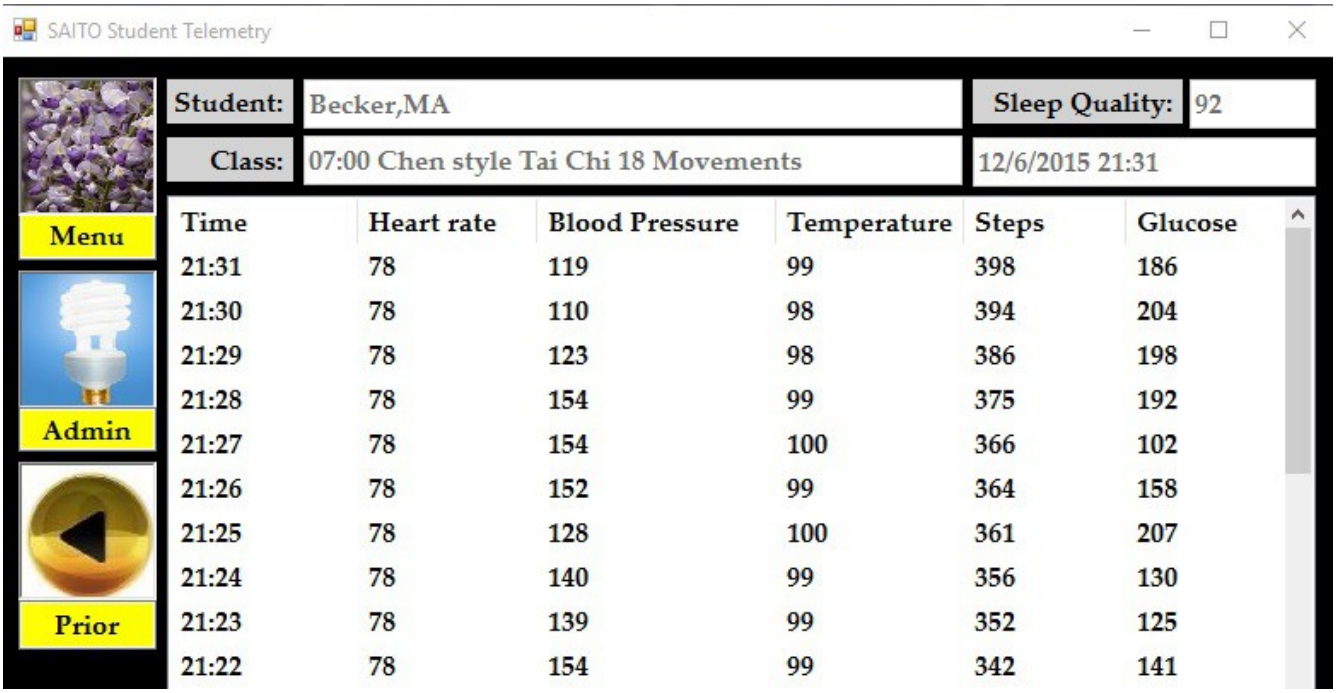
the student menu



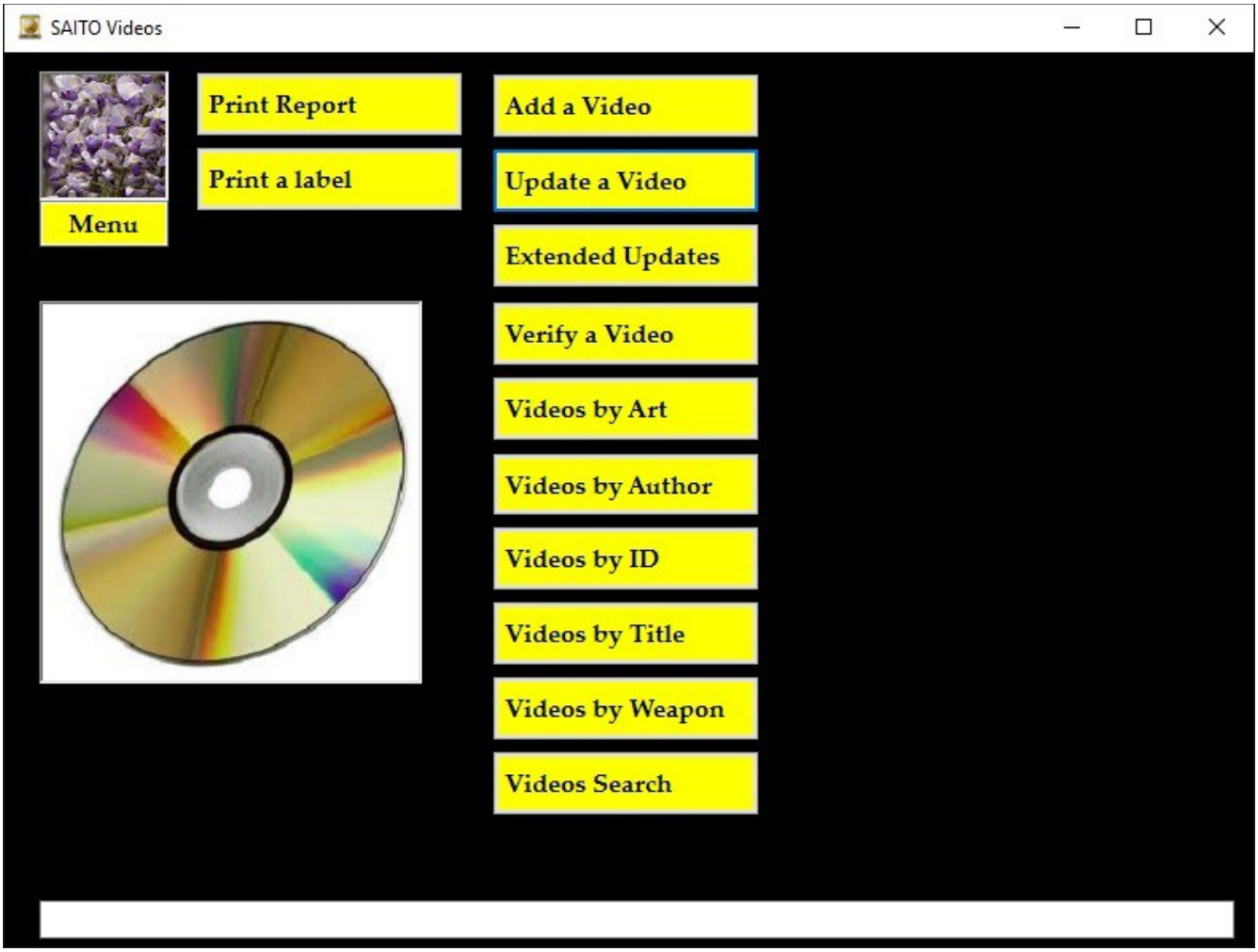
The teacher menu



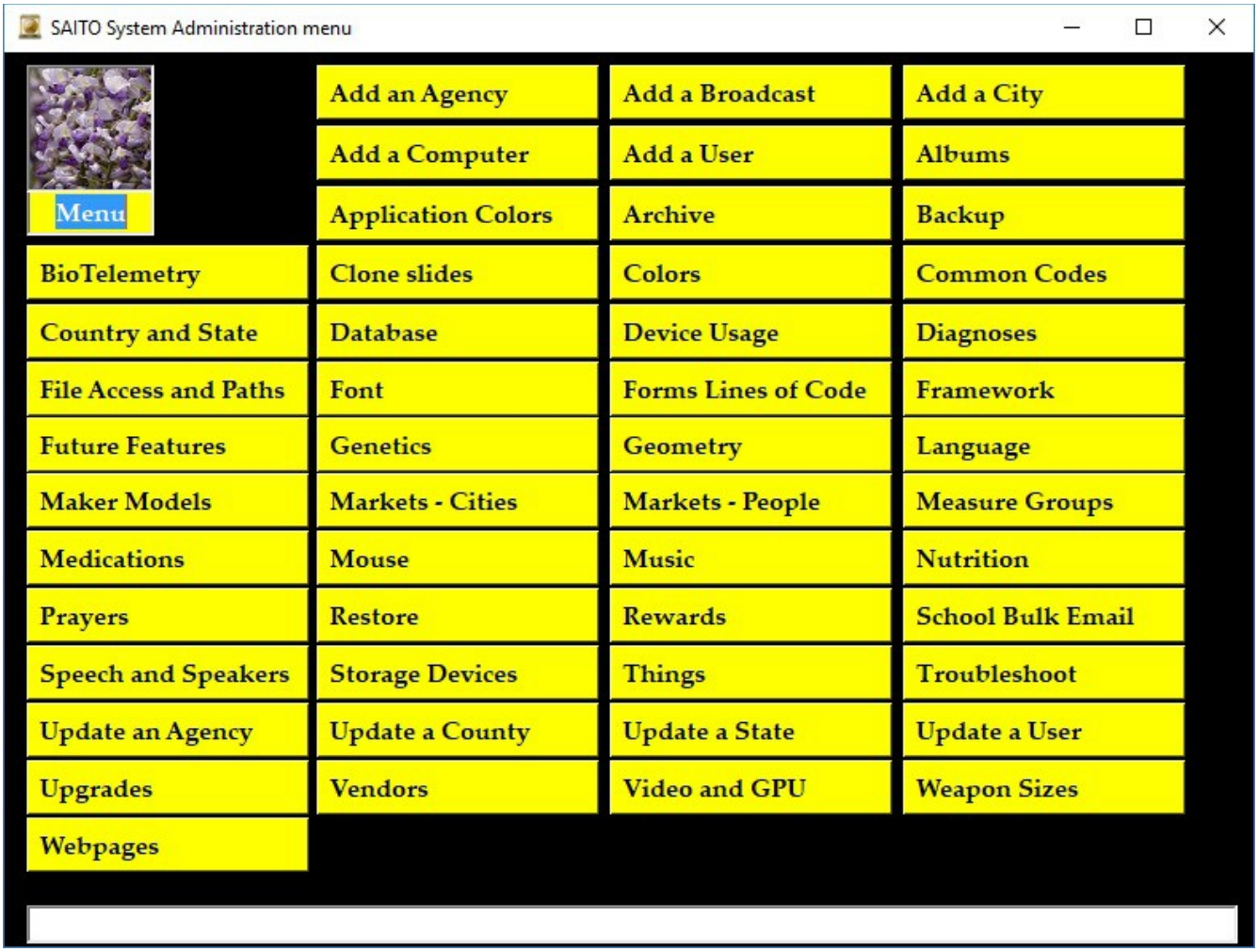
We have reluctantly left smart glasses in place as a supported device in the telemetry network of things



Time	Heart rate	Blood Pressure	Temperature	Steps	Glucose
21:31	78	119	99	398	186
21:30	78	110	98	394	204
21:29	78	123	98	386	198
21:28	78	154	99	375	192
21:27	78	154	100	366	102
21:26	78	152	99	364	158
21:25	78	128	100	361	207
21:24	78	140	99	356	130
21:23	78	139	99	352	125
21:22	78	154	99	342	141



There are three types of videos – reference videos are usually a performance by a master or grandmaster with teaching to be used by students and teachers; historical videos of students performing at an exhibition; and daily videos of students in class. The menu above focuses on reference videos. Currently, there are slightly more than 500.



Access to the administrator's menu shown above is somewhat restricted. Some aspects are fairly narrow. For example, SAITO keeps track of how many lines of code are used by form.

SAITO Counts form lines of code

Menu

Admin

Codes

Load

Refresh

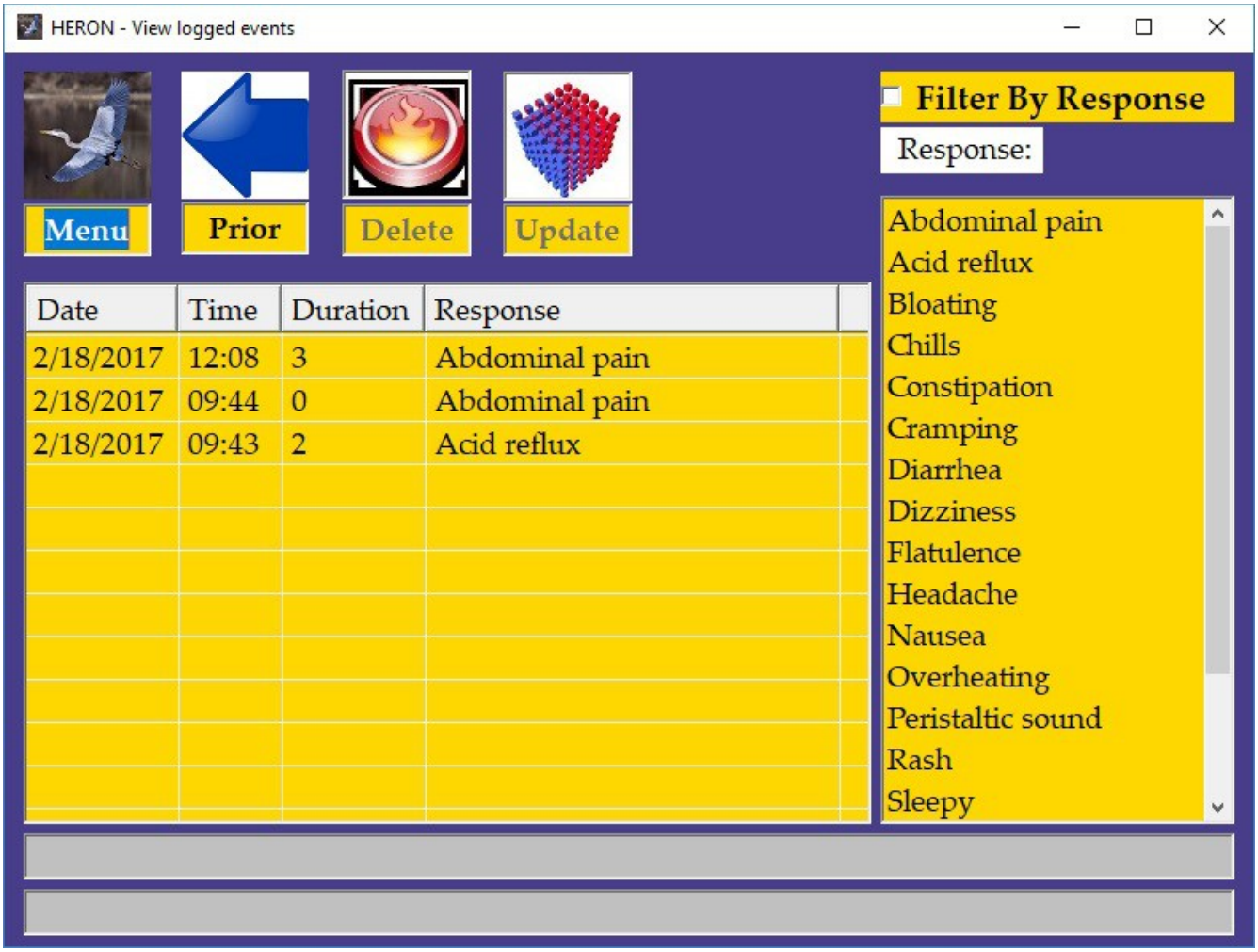
Form	Description	Lines
frmIMS8A55	ACCOUNTING PROJECTS	96
frmIMS8A56	ACCOUNTING RECEIVABLES	436
frmIMS8A57	ACCOUNTING REVENUES	435
frmIMS8A58	CONNECT ACCOUNTS AND FINANCIAL TYPES	607
frmIMS8A59	POPULATION AND DISABLED PEOPLE BY SUB-COUN...	340
frmIMS8A60	SELECT A TEACHER AND CLASS FOR SPECIAL STUDE...	415
frmIMS8A61	SELECT INVENTORY TO ASSIGN AN ACCOUNT	483
frmIMS8A62	PERIODIC ATTENDANCE SUMMARY	567
frmIMS8A63	UPDATE AN INVENTORY ITEM WITH AN ACCOUNT	268
frmIMS8A64	ACCOUNTING - MATERIALS - DETAILS	431
frmIMS8A65	ASSIGN AN ACCOUNT TO A SCHOOL FINANCIAL DET...	489
frmIMS8A66	ACCOUNTING - FRINGE BENEFITS	432
frmIMS8A67	GRAPH LISSAJOUS CURVES ON A CHART	206
frmIMS8A68	SYNDROMES BY ABBREVIATION WITHIN A CATEGORY	239
frmIMS8A69	SEND DAILY SCORES AND PAIN EMAILS	705
frmIMS8A70	SCHOOL BUILD-OUTS MENU	700
frmIMS8A71	SCHOOL BUILD-OUT ADD	302
frmIMS8A72	SCHOOL BUILD-OUT UPDATE	282
modComm...	UNKNOWN	2,868
TOTAL	480	191,492

In contrast, genetics has its own menu

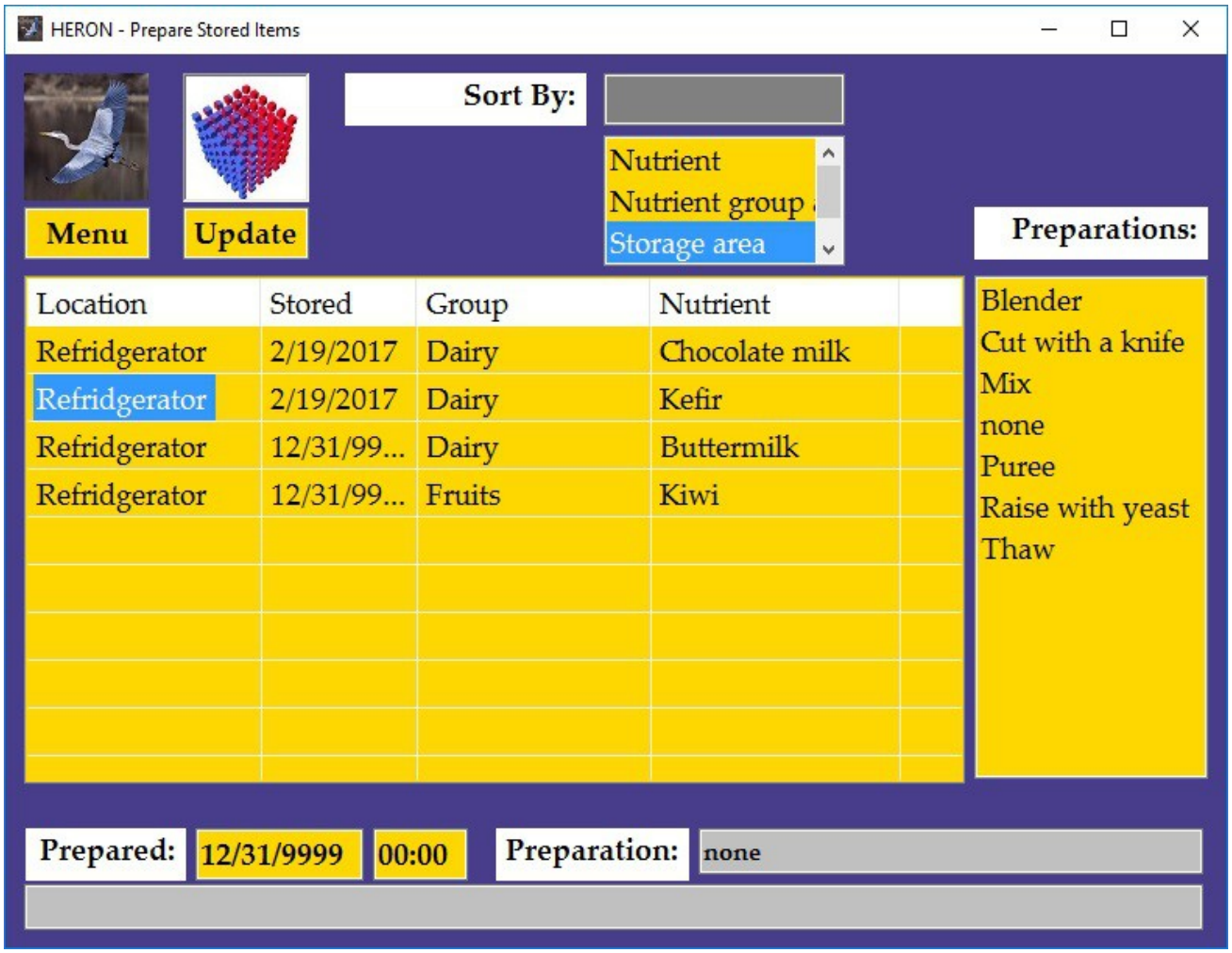
Our HERON software

HERON grew out of the observation that parents, students and others needed to record significant events that occurred during the 20-odd hours per day outside of class. HERON will likely be distributed for free to parents and students. It will almost certainly be re-platformed to run on a variety of mobile devices such as smart phones, tablets, Chromebooks and iPads.

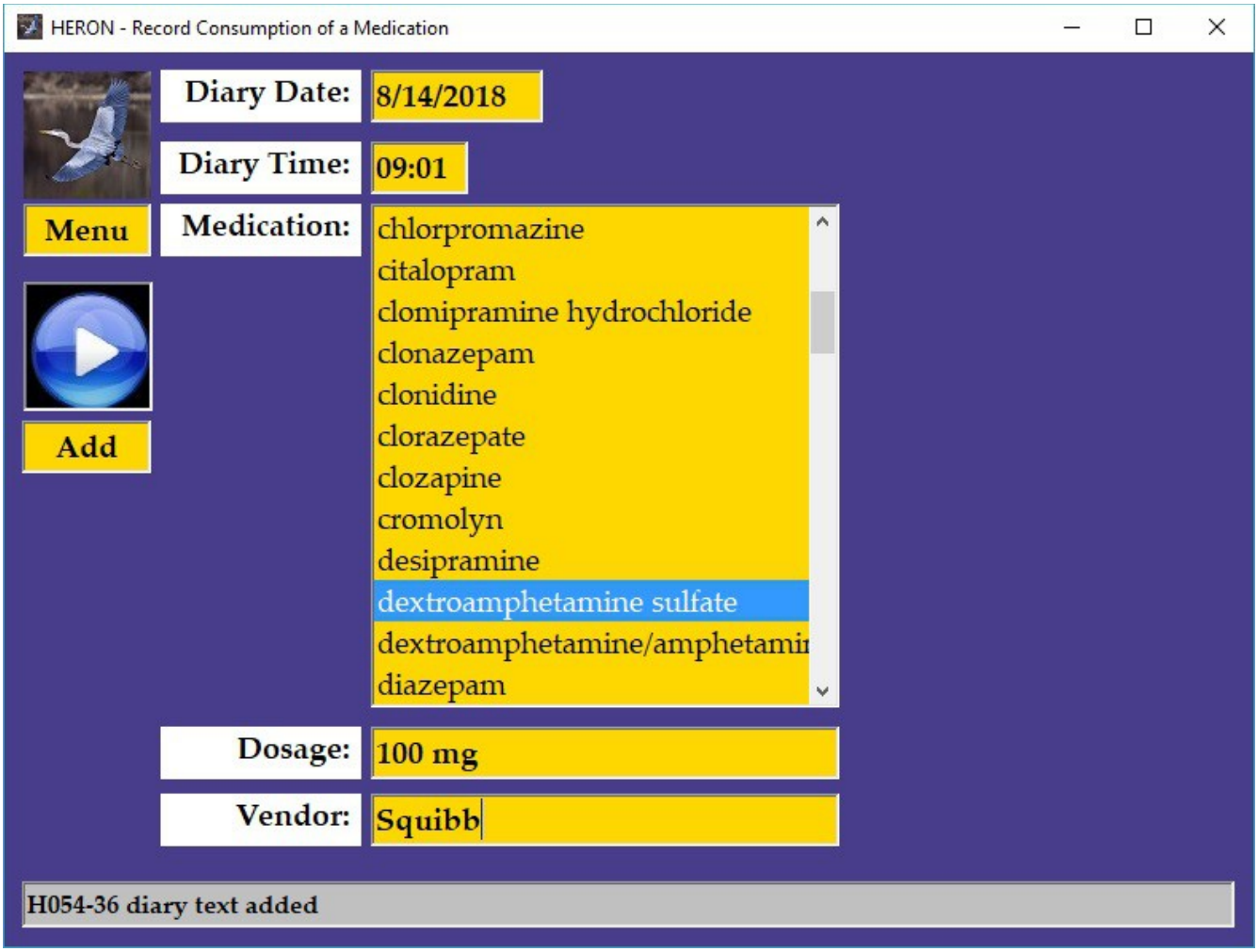
As can be seen, HERON acknowledges that there are often powerful influences exerted by food and that there are often very subtle but significant differences both across students and even across products for a selected student.



Logging a diary entry for pain



Selecting from purchased items that are stored prior to preparation.



Diary entry for consuming a medication

For Parents and Physicians

In a manner similar to how the Dow Jones Index or the Standard and Poor's 500 is calculated one may total weighted scores from multiple sets for each student on each day. This aggregated measure is called the velocity of learning. Its most important use is to provide parents and physicians a quantitative basis for assessing changes in diet, sleep, logistics and medications. If the Tai Chi scores go up, the change was likely positive. Note that blind scoring is done by professional judges every two weeks – by blind we mean the judges do not know that the student is handicapped.

If genetic information (limited to the 1400 genes of interest) for a student is provided, it is possible to anonymously compare student velocities over time as a way to be informed about strategies for what to change. For example, suppose a student with the R553H mutation in his or her FoxP2 gene on chromosome eats several carrots per day. It is useful to compare how quickly other students with this mutation of interest learn. It may or may not be useful to compare how students with the R382X mutation of this same gene are progressing. FoxP2 interacts with over 180 other genes. How useful comparison might be to students with mutations in one or more of these genes is currently the subject of fierce debate.

Genetics currently lacks an agreed notation for describing epigenetic effects such as DNA methylization and histone modification. It does not appear that any sort of international agreement will be available in the near future.

Tai Chi Tools

We had intended to teach all students (from left to right) Tai Chi Ball, Bang and Ruler but not Bar. One student was a little obsessed with his ruler the first time he handled it. We are flexible, so we gave him a carrying bag and allowed him to take the ruler home. His parents emailed us and we sent them a reply with a link to video of the exercises. His parents emailed us again the next morning. Their son had held the ruler all night. It was the first time he had slept through the night in seven years due to arthritic pain in his arms.

At about that time we had tried to relocate the wrist-mounted bio-sensors either to the right wrist or to an ankle. We were informed most such sensors are tuned to the left wrist. Some professional wushu performers and coaches and their doctors took an interest in our work. They suggested assigning individual homework as would be typical for a university student in China. Different experts in China e-wrote to point out that ruler exercises need to be part of a balanced suite or progression.

We had already decided that the solid wood Tai Chi Ball was too heavy, too expensive and too dangerous – a simple playground ball was fine.

Students disliked metal and plastic rulers and bangs and loved the grain of real wood. We added more temperature sensors to arms and legs, and discovered we could measure the effort to perform movements and sets. And we could measure pain. For some students pain was frequent and severe and they had no words for it.

Medically and culturally, faces and hands get the majority of attention. We had wanted to loosely monitor foot temperature but we discovered for some students there was a considerable amount of foot pain. Never recognized by anyone – except the student. We now include a variant of the Tai Chi bar (below). Our SAITO application and its database were gracefully growing to accommodate more sensors and more tools during class time of two hours per day. See Appendix B for images of the various Tai Chi tools.

Tai Chi Weapons

We teach weapons starting the first day. No exceptions. Proficiency in five weapons (the classical single saber, single sword, eyebrow height staff and spear plus the double batons which are more or less unique to Chen Family style) are **required** for a bachelor's degree. In a similar manner, double sabers, double swords, lau gar (3 meter long pole) and halberd (General Kwan's dao) are **required** for a master's degree. We also makes use of double swords and Kwan daos to very visibly acknowledge the efforts of esteemed guests at formal exhibitions.

Bachelor's degree required weapons

Master's degree selected required weapons

Genetics

Two students – one gene

By sheer dumb luck (for us) two students both had a defective ADNP gene which causes a type of autism known as Helmsmoortel-van der Aa syndrome. But they showed significantly different velocities of learning. It turned out they have two quite different mutations which meant that SAITO had to support not just genes but base pair changes within the genes. SAITO does NOT yet have support for epigenetic factors.

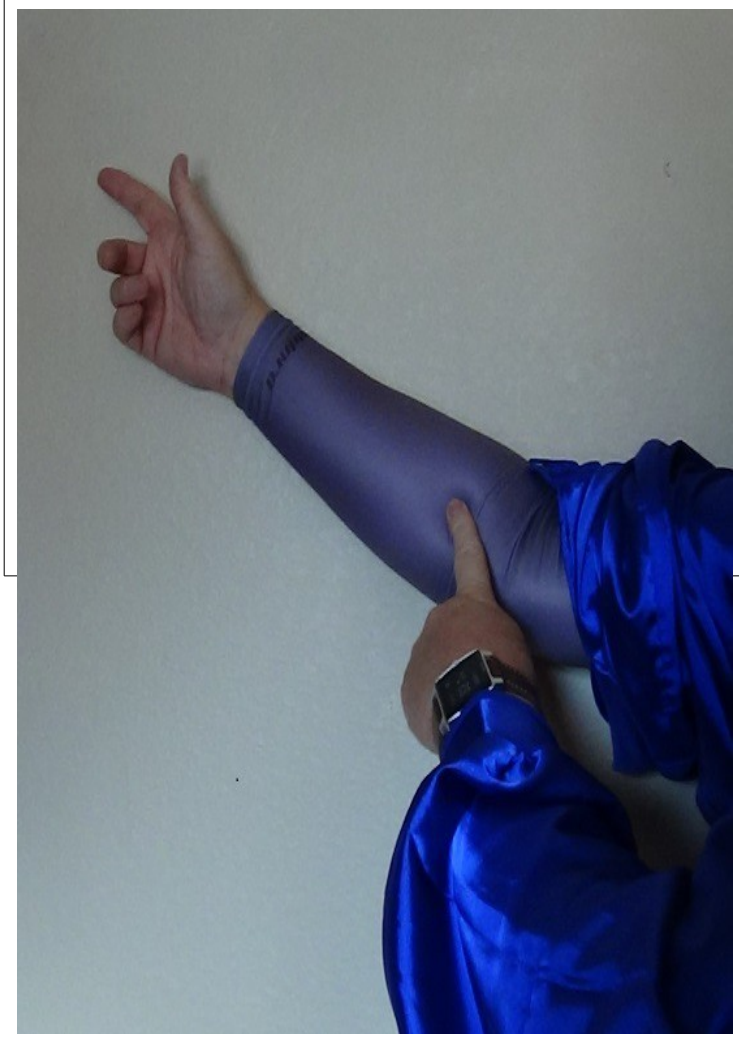
Upon closer inspection dozens of genes have differing tri-nucleotide repeat counts that determine if someone is merely a carrier for a condition, has a maturity-onset version of the disease or has a usually more more severe juvenile-onset of the disease. The HTT gene that causes various types of Huntington's disease (sometimes known as Huntington's chorea) is an example of this. Huntington's disease was first recognized in 1841, but fully described by Charles Huntington in 1872. The genetic basis was discovered in 1993. The HTT gene is in the p16.3 of chromosome 4. In particular, the HTT gene has a three base sequence of CAG (cytosine-adenine-guanine) that codes for the amino acid glutamine. If CAG repeats less than 26 times the person will likely be normal and there is unlikely to be any risk that his or her offspring will inherit Huntington's from this parent. With 27 to 35 repeats the person will most likely not have symptoms, but there is risk for any offspring. With 36 to 39 repeats the person may or may not get Huntington's disease and there is likely a 50% chance that offspring will also. With 40 to 59 repeats the person gets Huntington's disease probably in his or her 40s or 50s. With 60 or more repeats the person gets Huntington's disease probably in his or her 20s.
Another possibility is that two different mutations of the same gene cause wildly different symptoms, sometimes in seemingly unrelated disability categories.

Measuring Pain

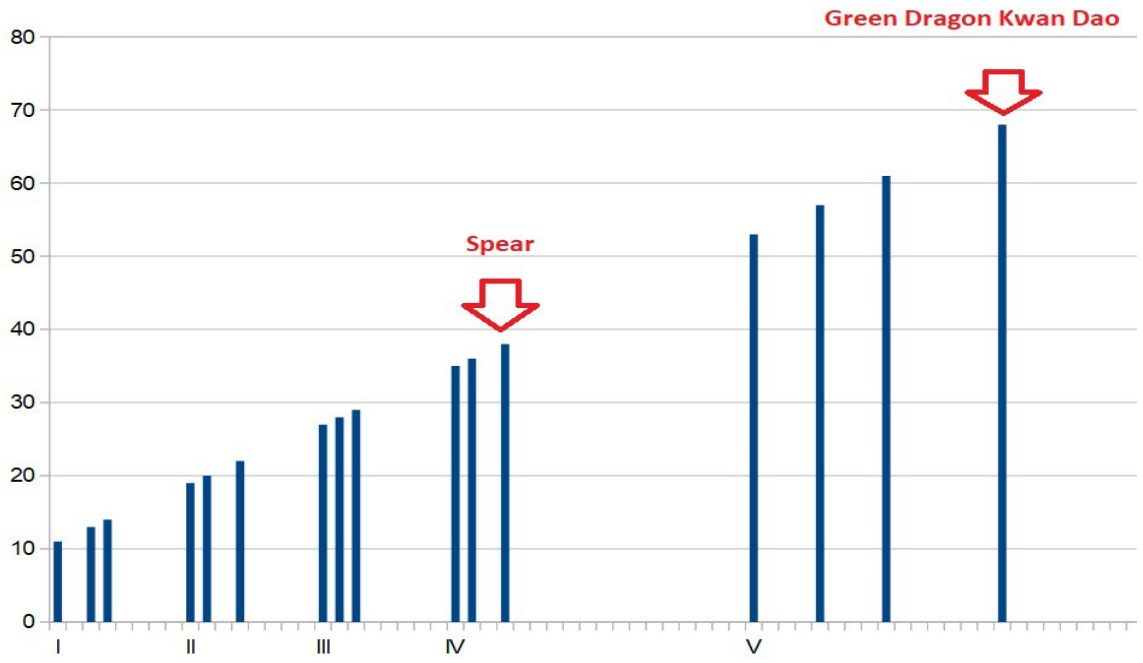
Originally, we expected to put x y z location sensors in a garment known as a manteau or pi sha. Pi shas could be quickly put on and taken off. Students would wear bio-sensors on their left wrist to measure heart rate, blood pressure and temperature. These can be used to predict most seizures.
Then a doctor at Harvard e-wrote.

He made a very convincing case that our measuring Tai Chi Chuan movements and comparing them to the movements of a Grandmaster in a similar garment was a marvelous idea, especially if students were following along to a video of the Grandmaster but head movements during stillness (sitting or standing WuJi meditation) were powerful predictors of falls which were important in ataxia and osteoporosis. So we added accelerometers mounted on a visor, baseball cap or simply on a wire called the diadem. We had intended to use the early minutes of class while students were meditating to validate all the sensors and their hubs. This opportunity was now gone, but we aggressively increased the number of threads executing in parallel before class and all was well. The claimed reliability and accuracy of early accelerometers was somewhat exaggerated.

Pi shas let sensors move too much



Note the bio-sensors on the left wrist. On the right arm is a sport sleeve like one might see on basketball or baseball players. Sensors are embedded on the medial and distal surfaces and the sleeves are worn on the arms and lower legs.



With some assistance from a few verbal students we finally realized that in most cases peaks and valleys in the amount of energy measured as heat could be equated to pain. When we measured overall effort to perform a set and charted the results we obtained the chart above. Even a casual inspection makes obvious the gap between spear and halberd: there is something, probably a long weapon set, missing. We have made some interesting discoveries about sword and saber configurations, sequencing and accessories.

Preliminary results

To our considerable surprise, a number of our discoveries have applicability to teaching martial arts to neurotypical students.

1. The traditional mace has a square cross section and weighs at least three pounds. It is used primarily as a conditioning tool and Chen style has a relatively short set known as double batons for just that purpose. For reasons of cost and safety we have determined that teaching responsibility

for space (so the student does not hit himself or anyone else) should start with a single padded 26″ stick and progress through a single wooden stick to two wooden sticks.

2. Most students will do almost anything in order to learn saber and sword. Edges need to be checked frequently for desired dullness.
3. An apparent inability to speak English does not imply an inability to understand spoken Spanish.
4. In terms of analyzing individual velocities of learning categorizing a student as autistic is largely without any useful meaning. Even asserting that students with Helmsmoortel-van der Aa syndrome due to a defect in the ADNP gene on chromosome 20 should be similar is inaccurate – which mutation of that gene matters. In Prater-Willi syndrome the effects are measurably different depending on whether there is a deletion in paternal copy of chromosome 15, a maternal uniparental disomy or any of several other DNA configurations.
5. While primarily intended to assist parents and physicians with making life style choices, the Tai Chi scores can be used to measure the effectiveness of in-class accommodations for dark glasses, music, ear buds, snacks, breaks and socks.
6. Tai Chi tools such as the ruler, ball and bang were typically taught to advanced students. They are of general benefit to almost all students, and are of particular benefit to students in the cerebral palsy and arthrogryposis spectra who suffer from what is described as a painful and progressive arthritis involving the fingers, hands, wrists and lower arms. So we have moved the tools into the earliest sections of the curriculum.
7. Similarly, due to a scarcity of combat applications Qigong routines were not taught to beginning or even intermediate students. However, it is already clear that these routines facilitate learning the Tai Chi Chuan routines so the curriculum was adjusted.
8. There is a great deal of tactile sensitivity and likely visual sensitivity as well (perhaps even osmophobia) when it comes objects held by students, notably to Tai Chi rulers, Tai Chi bangs and staffs. This is observed to a lesser extent in sword and saber grips.
9. Most of the types of ***grand mal*** seizure are dangerous for the student

having the seizure and very stressful for the aides and teacher. What was unexpected is that these events are very upsetting to many classmates.

10. Personalized homework, once reckoned to be the exclusive domain of elite athletes, is measurably beneficial.
11. Finding a snack that all or even most of the class can safely consume is a challenge. Our current thinking is rice. Allowing students a small amount of congee (a porridge made of rice and water) is under discussion. The advantages would be eliminating any hunger anxieties, reducing the impact of whatever (uncontrolled) food the student ate previously and providing some internal warmth during cold weather.
12. The obscure and very rarely taught Tai Chi bar was originally used for what would be known as plantar fasciitis and chronic foot pain from practicing on stone. It was surprising to discover that some students with types of arthrogryposis and cerebral palsy had been suffering foot pain for years AND that the Tai Chi bar exercises helped alleviate the condition. As it is usually not possible to ask people with expressive language disabilities much, let alone whether they are in pain, measuring the difference in performance at different pain levels will require some thought.
13. After a lengthy international e-consultation it emerges that a type of liniment known as dit da jow is recommended for use after Tai Chi bar exercises. Various dit da jows are used in Iron Palm training and the contents of the liniments vary significantly. Research will be required.
14. It is evident that the idea of embedding some temperature sensors in Dacron-Lycra arm-sleeves needs to be thoroughly explored. The length and material of the sleeves, the configuration of the sensors and the correlation with other measures needs concentrated attention.

Marketing and Financials

1. In addition to umbrella organizations there are over 70 (US) national associations for various types of autism alone. So far, there has been willingness to forward emails for specific regions – were we interested in opening a school in Detroit the National Ataxia Association, for example, would be amenable to notifying select parents and physicians if provided a list of ZIP codes. This focused marketing holds more promise than advertisements or articles in general purpose newspapers.

2. Local colleges as a source of aides and potential teachers

3. There is a wide range of hospitals and specialty clinics. In the San Francisco Bay Area in northern California we would contact appropriate departments at university hospitals. These would include the University of California at Davis School of Medicine, University of California at San Francisco School of Medicine and Stanford University School of Medicine. There are very mixed reports specifically about support for disabilities of interest as well as generally about quality of care at the Kaiser Permanente hospitals. Kaiser Permanente operates in eight states (California, Washington, Hawaii, Oregon, Colorado, Maryland, Virginia and Georgia) as well as the District of Columbia and is the largest managed health care organization in the United States.

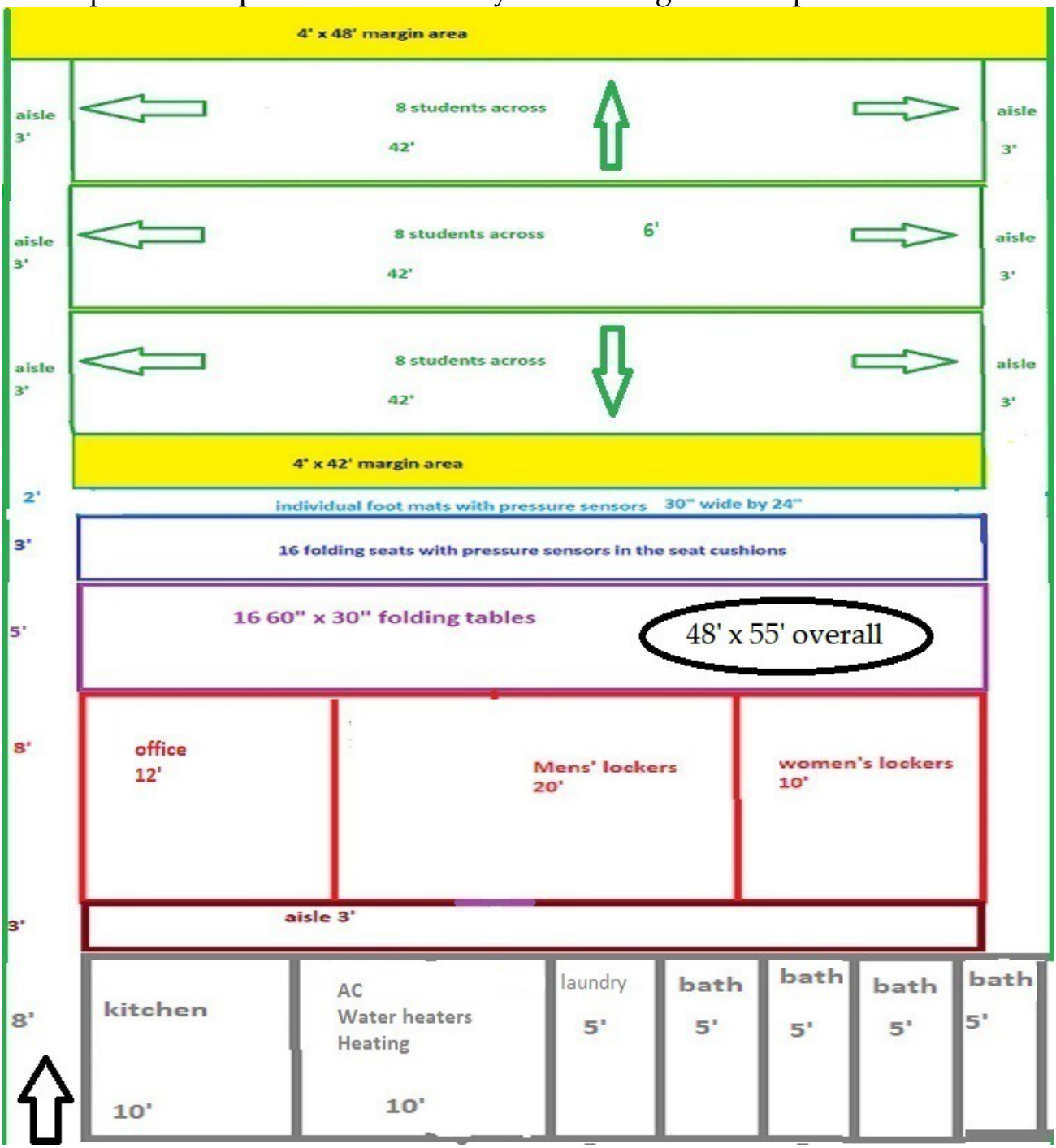
4. School districts by law have to have a special education coordinator.

5. We have developed a curriculum suitable for an associate degree (AA) or for a high school physical education requirement for people being home-schooled.

6. SAITO has an overly elaborate breakeven analysis function that also handles revenue projections. See Appendix D for a sample.

Facility Construction

A floor plan for a space 48 feet wide by 55 feet long = 2640 square feet



In additional to whatever sanitary requirements a city or county might impose we would install at least one shower to help when students have tachycardia or overheating. There are a wide variety of seizures but generally the student

needs serious cleaning after a major seizure. For building on bare land we would use a concrete slab, a plywood sub-floor and a wooden floor, possibly with carpeting.

There are three possible types construction projects – takeover a closed school or church; build out an existing structure of four walls; and build a structure on bare land.

Expenses – monthly costs

Martial arts insurance	40
General insurance	60
Utilities	215
Snacks	120
Water	80
Cleaning supplies	30
Vehicle lease	247
Rent or lease or mortgage	3000
Business license	8
Chen Family Association	120
University tuition	96
Outside grading	480
TOTAL	4496

We anticipate some one-time expenses for legal services and probably a building permit.

Revenues

In the United States the social services agency that is responsible for people with disabilities varies considerably by state. In California there are 22 regional

centers that often cross county lines. For children over 3 and under 22 the relevant school district, the regional center and the family agree to a written contract called an Individual Education Plan (IEP). About 15% of California children have such a plan. We would bill the regional center $5.00 per hour ($200 per month) based on validated attendance. We prefer students attend seven days per week ($300).

Students would also have a family-controlled monthly allowance of $50 for weapons, clothing and accessories. For students over 21 there is no school district and the contract is known as an Individual Behavior Plan (IBP). For both types of plans the disabled individual can make the decisions. The regional center or the school typically provides 3:1 or 1:1 aides who accompany the students and transport arrangements are negotiated. SAITO has specific support for social service agencies and schools.

For instruction in the United States we intend to charge five dollars ($5.00) per hour per student with a maximum billing of forty hours for a total of two hundred dollars ($200) per month per student. If a student came all 30 days (60 hours) the billing would still be $200. However, it seems to be the case in some US states that **ALL** hours must be billed, so we are studying the matter. Rates in other countries are to be determined. Note that generally the student and the family pay zero. Three classes of 16 students each times $200 = $9600 per month for revenue. The successive schools will each have to pay a full-time teacher. We would charge a nominal monthly subscription for students who do not attend class physically but want their videos graded. We do not have much interest in making vast profits reselling weapons, clothing and accessories. The $9600 has to pay for rent for 2500 square feet, utilities, insurance, supplies and teacher salaries. Teachers would be mildly encouraged to teach additional classes at night.

Limits

Our claim is if the student can walk and wants to learn, we will finesse the rest. Chen Family style Tai Chi Chuan has been taught to people with blindness, in some cases by blind teachers. Deafness is actually something more of a challenge as we are currently inept at American Sign Language, but there really

is no premium placed on receptive language abilities. Of considerable more concern from a teaching and safety point of view are seizures, tachycardia and other overheating as well as undesirable behaviors. We would have to exercise some discernment with such students and would expect that they would have experienced one to one aides already assigned. For people with mobility challenges such as needing a wheelchair we have no curriculum and are currently not qualified to teach such students.

Transportation

We expect to **eventually** consider the use of shuttle vans especially for adult day care. Currently, the noise and opportunities to be abused or bullied rule out the use of traditional large school buses for most special needs students during their school years. Instead, many school districts use the smaller bobtail buses which permit the driver (who may be accompanied by an aide) to keep all students in view. Some private schools such as A Better Chance in Richmond maintain their own vans and provide door to door transportation.

We are informed that about 20% of adult day care participants have specified in writing that public transportation such as BART and buses will be used. It is not clear how logistics during transit strikes are managed. School districts rarely consider these choices due to liability concerns.

We are further informed that less that 10% of parents transport school age or older children in private cars.

In all cases significant delays due to traffic and other circumstances have long been known to cascade into serious difficulties both on the bus and later in class. It is unfortunately likely to be the case that the exact distress caused will be measurable. Were we to eventually use shuttle vans it would be of interest to determine if relevant videos could be productively shown during travel. That means that students do not get nauseated, do not have seizures and so on AND actually can absorb measurable amounts of material.

Build-outs of Schools in Phases

The initial location is arbitrary – we will use Contra Costa County in northern California as an initial location

Phase 1: one school in Concord (population 122,067, the largest city in the county)

Phase 2: schools in Antioch (east of Concord; population 101,118) and Richmond (west of Concord; population 103,161) and Danville-San Ramon (south of Concord; combined population 111,235)

The Silver Wolf Wushu website has specific cities and maps for each phase starting at www.silverwolfwushu.com/Investors_NorCal01.html

Phase 3: twelve schools in northern California including Sacramento and Oakland

Phase 4: seven schools in the western Bay Area between San Jose and San Francisco

Phase 5: the remaining 15 cities with over 100,000 people in Northern California

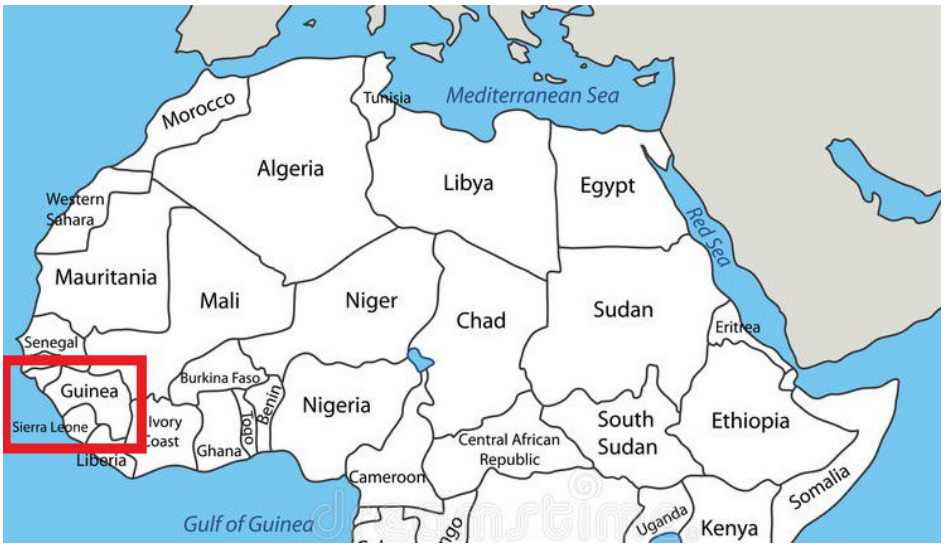
Phase 6: the sixteen largest cities in Southern California

Phase 7: the next sixteen largest cities in Southern California

further phases: about 225 additional schools nationwide

International Impact

President Xi Jinping (习近平) who serves as General Secretary of the Communist Party of China, President of the People's Republic of China,and Chairman of the Chinese Central Military Commission recently visited Guinea (inside the red box to the lower left)



to celebrate an agreement regarding development of Guinea's bauxite deposits. A reasonable estimate is that the reserves contain 7.4 billion tons which is about 10% of the available material on the planet and far more than major producers like Australia, Vietnam, Brazil and Jamaica. Guinea has a population of about 12,413,000 people. The increase in mining and shipping is **unlikely** to directly benefit 12,412,000 people. At the same time, while there has never been a national DNA survey undertaken, it is likely that there are almost 400,000 Guineans with disabilities in the Silver Wolf Wushu interest areas. As will be recalled, there was a very dangerous outbreak of Ebola in Guinea from 2013 to 2015 with a flare-up in 2016. Current estimates are 32,000 people were infected but did not manifest primary symptoms; 12,000 people survived despite not going to a clinic; 6,000 were treated and survived; and 8,000 died. There were huge problems – for four months the early cases were mis-diagnosed as Lassa fever; at least one team of medical workers and journalists was killed; and thieves hijacked a shipment of infected blood. It is not known at this time if health practices such as Tai Chi Chuan and Qigong would be beneficial to the 50,000 Ebola survivors or if such practices would help future sufferers to avoid dying or being crippled during the next Ebola outbreak.

The Investors section of the Silver Wolf Wushu website contains suggested allocations for 8000 schools in 240 countries. In the case of Guinea (listed in the section for French speaking countries) the suggestion was initially thirteen

schools. Besides providing care for the students the schools would provide jobs for teachers, aides, geneticists, transporters, janitors, and food preparers. Whether Tai Chi Chuan or other martial arts would be popular is hard to predict, but thousands of permanent jobs would be created. It is unknown if Tai Chi Chuan and Qigong would be effective for people with AIDS (250,000 cases), malaria (one million confirmed cases), Lassa, Ebola and dozens of other diseases, but it has long been a principle of epidemiology to do research on someone else's country. We are far past bauxite.

In the Future

In addition to a horizontal expansion of more schools the SAITO software is designed to support both languages other than English (see our website – www.silverwolfwushu.com) and martial arts other than Chen Family Tai Chi Chuan. We note that building a collegiate master's degree program requires eight more canonical sets (16 total) whose movements have international judging standards. As far as America goes, there is nothing to say that neurotypical students could not obtain such degrees. We do not know if that would be true overseas.

Many families have already asked about a vertical expansion. This takes two forms: (1) day care where students have class from 9 to 11 and from 1 to 3 with lunch and low-key activities in between [probably including breakfast and three or four snacks] and (2) residential care where students participate in the day care discussed above and live in affiliated group homes. These are both very lucrative possibilities that merit exploration.

Technical Challenges

It is likely HERON will be re-platformed onto something like Xamarin so it can be run on iOS and Android hardware. HERON will also need expanded language support (see below). To scale, HERON devices will need to upload to a cloud.

We have already been asked to provide versions of SAITO for Spanish, Chinese,

French, Russian, German, Turkish and Italian. We would likely need to use a cloud to distribute SAITO and HERON updates.

/1/ It is likely many more genes of interest will be discovered and that syndromes will be drastically reorganized. /2/ It is slowly becoming possible to describe different versions of a gene: FOXP2 on chromosome 7 has been studied for 30 years but recently the mutations R553H and R328X were shown to have very different effects. It seems likely the current notational scheme will be swept away in the near future /3/ FOXP2 interacts with over 180 other genes. There is currently no formal notation for describing lattices or trees of genes. Comparing humans will require cloud processing. /4/ Similar notations for epigenetic influences such as DNA methylization and histone modifications are years away. /5/ It is a matter of indifference to us where we build the first wave of schools but starting with just one 2,500 square foot school and polishing its daily routines seems wise. /6/ Based on decades of experience in epidemiology we have detailed some build-out plans in the **International** subsection of the **Investors** section of the website. European treatment of people with disabilities is archaic, and there is a fair amount of hostility to American companies. Western Africa in particular has financial challenges as well as very complex medical environments due to AIDS, Lassa fever, Ebola and malaria among other diseases.

Contact Information and our Website

We maintain an English language blog at

https://silverwolfwushu.wordpress.com/

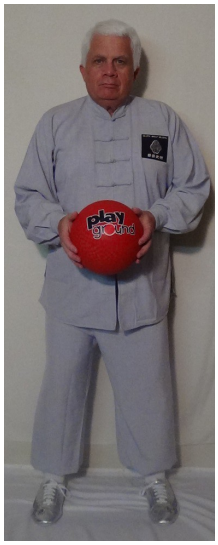
It can charitably be described as wide-ranging.

Our website, www.silverwolfwushu.com, has grown past sprawling and can be daunting to navigate. The bulk of the more than 2000 web pages are in English and there is a special section for investors. For any questions please contact us at info@silverwolfwushu.com

Appendix A – A Kernel of Courage

When asked at a seminar in Berkeley California to explain what was meant by kernel of courage" (Mandarin: 'Yongqi de hexin' = 勇气的核心) the famed Zhong Xuechao, always a man of few words, asked if the tide was coming in or going out. Most of the year he teaches at a temple high in the Wudang Mountains in central China. While he has considerable skills in a variety of Wudang martial arts, swimming is not something he was proficient at. Nevertheless, upon being told that the tide was coming in and that there was not much time, he hopped out to a slippery rock with a jagged top and limited horizontal surface area and proceeded to do a complete set with his usual crisp elegance.

Appendix B – Images of Tai Chi Tools

	
Tai Chi ball - wooden	Tai Chi ball - rubber
	
Traditional Tai Chi bar (16″)	Modern Tai Chi bar (8″) and porcupine ball (3″)
	
Tai Chi ruler - cocobolo	Tai Chi bang (maple 16″)
	
Tai Chi bent bang (maple)	Tai Chi long bang (34″ birch)

We have already adding grip rings and are actively considering seminars to

teach exercises using Baoding balls and Wing Chun rings.

Appendix C – Research Goals and Directions

Construction

1. Documentation of the labor and materials needed to build a school within an existing bare walls structure

2. Documentation of the labor and materials needed to build a school from bare land

3. There is little published information comparing vans with school buses or commute buses. The length of the ride to class is often cited as a factor in subsequent behaviors, but there is no published material on this.

Maintenance

4. Analysis of conditioning and heating both in terms of temperature and humidity as well as air quality

5. Study of water quality and seasonal serving temperatures. Traditionally, martial arts students slowly consume various diluted teas during breaks. The American tendency to gulp very cold (iced) water is usually not viewed favorably.

6. Tracking hypo-allergenic cleaning supplies is not always as complete as one might like as the student might not necessarily react within the two hours of class time.

7. Lighting is a compromise between illumination for photography and visual brightness for students. So fr, analysis of facial expressions for students with autism spectrum disabilities has not proven to be fruitful so students wearing dark glasses to relieve bright lights might be a plausible accommodation.

8. Similarly, walls, floors and ceilings will need to be analyzed for acoustic properties. Unlike dark glasses, earbuds to lessen noise have a tendency to interfere with teaching.

9. Floors are also a compromise between surface consistency (so minimal wear) and the impact on shoes, socks, feet and knees.

Student Behaviors

10. Protocols for seizures

11. Protocols for self-injurious behaviors – these include a wide range of actions including striking one's own face, limbs and hands

12. Protocols for tachycardia (heart rate triples to over 200)

13. Protocols for bradycardia (heart halves to 35)

14. the student wants to lie on the floor either to cool off or (it is conjectured) to reduce stimulation

15. Agoraphobia (fear of open spaces) or claustrophilia – the student will seek refuge under a table, in a closet or in a locker. Also conjectured to be a response to excessive stimulation

16. screaming

17. throwing objects (especially weapons or tools)

18. the influence of repeated music – perhaps a different piece for each set - is unknown.

Weapons and Tools

19. Clarification through a much larger sample of hypersensitivities regarding flag and tassel colors, lengths and materials

20. Confirmation that just about everyone dislikes plastic and that very few students like to touch metal. In contrast, there is nearly universal preference for wood and for the wrapping of handle areas on swords and sabers.

21. Further study is needed to determine if the area of the foot contacted by the Tai Chi bar and the porcupine ball matters – whether the contact should be the outside of the foot and extended into the heel, whether the big toe should be involved and whether the arch of the foot is a useful target

22. Students with some conditions, notably Prater-Willi syndrome, wear gloves. Whether these should remain on when doing Tai Chi Chuan, Qigong, using tools or handling weapons will need to be considered.

23. Preliminary results indicate that some students with an ataxia spectrum disability (in which there are hundreds of named syndromes) benefit measurably from learning the arms, upper body and head changes during a movement while seated before learning lower body and leg/foot changes. How applicable this tactic is in general is difficult to guess. Since weapons typically impose a greater muscular burden whether the tactic is useful at least for short weapons needs some consideration.

24. The resulting audible irritation for teachers, aides and students when the class practices with flexible blades has heavily weighted the debate in favor of stiff blades.

25. In a similar manner, neurotypical students preparing for competition often polish their blades to increase the visual dynamics. The glitter does not harmonize well with cameras or special needs students so it may be useful to somewhat reduce the reflectiveness of blades.

26. There is the issue of a weapons set, perhaps involving a fork, being missing from the curriculum. Seven possible forks (yellow arrows) shown below.

Food

27. What, if anything, to serve before class to reduce any anxieties and to start everyone from a common status. A cup of a rice porridge known as Eight Treasures has been suggested.

28. Can students bring personal snacks? Can they be eaten at any time? Variance reduction suggests the answer of 'no' to both questions. Is there a useful common snack given frequent allergies to gluten, dairy and nuts.

Pain

29. How accurate are temperature changes as an indicator of pain? Are there false positives or missed negatives? If pain can be reliably recognized is there a significance to sudden versus gradual onsets and recoveries – a sharp spike versus a gradual v-shape? If pain can be reliably recognized what is to be done by the teacher or aide or student?

30. Shown below is a large Tai Chi Chuan class (about 100 students) in China for adults with severe mobility challenges. The wheelchairs are actually voice-controlled so the student can say (in Mandarin, of course), "Turn left 60 degrees" or "Go forward 50 centimeters". The correspondent who e-mailed the image asked quite a few questions about our experience with measurements from pressure sensors on chairs during seated meditation. Whether temperature sensors recording potential pain would be useful is under discussion.

Appendix D – Breakeven Analysis and Revenue Projections

We include results for a scenario with the following values for select parameters

1. construction (upgrading an existing facility) time: 1 month

2. construction cost: $17,500

3. monthly rental: $2500

4. security deposit: $2500

5. three classes; 16 students each

6. no (zero) salaries for aides - supplied by the social services agency

7. no (zero) transportation costs - provided by the social services agency

8. tuition rate: $5 per hour per student

9. tuition first paid – start of fourth month (we billed for month 2 at the end of month 2; they paid net 30 so received during month 4)

10. attendance 97%

11. monthly costs – $1000 - utilities, snacks, cleaning supplies, insurance

12. loan repayment – six months; 6%

End of Month	Revenue	Receivables	Loan Balance
1	0	0	$23,500.00
2	0	$9,312.00	$27,135.00
3	0	$18,624.00	$30,787.00
4	$9,312.00	$18,624.00	$25,915.00
5	$9,312.00	$18,624.00	$21,019.00
6	$9,312.00	$18,624.00	$16,099.00
7	$9,312.00	$18,624.00	$11,154.00
8	$9,312.00	$18,624.00	$6,184.00
9	$9,312.00	$18,624.00	$1,190.00
10	$9,312.00	$18,624.00	0