

Introduction

I am Ike Jeanes at 119 Spruce Street, a long time resident of Pulaski and the incorporator of Pedjo, PCB. – a startup business. I have a contract to purchase the [Signet Bank Building](#) (1 W. Main St.) and the adjoining buildings (15 and 19 W. Main St) recorded as (072-051-0021-0001 Block 21). These buildings have been vacant for many years. As you can tell by looking through the windows of 15 and 19 W. Main St., these two are in need of remodeling.

I believe neighbors will be pleased that this section of the block will now assume a positive character which will benefit their own businesses. And they will look favorably on the fact that the buyer is bringing in a new firm that will present the Town of Pulaski in a positive light.

Pedjo's neighbors can also have an added measure of confidence that the company will be a reliable partner because Pedjo is incorporated as a [Public Benefit Corporation](#). This form of C Corp obligates Pedjo to meet a high standard of corporate responsibility. The company's certificate of incorporation explicitly requires it, "To predominantly have a positive impact on society and on those who are materially affected by the corporation's conduct ..."

Design Shop and Tools We Use.

We will be using the property as a design shop for twin-tube bicycle frames of our design, bicycle accessories, small work stations and electronic components, specifically controllers and power boards for battery powered pedal-assist bicycles, known as eBikes.

In the design process we typically make prototypes using the same metal working tools which I now have in my basement at the house (2 small milling machines, one 12" lathe, and assorted smaller tools). We also will be using a 12' x 4' Pines bender [which I have purchased but have not yet had shipped in] to bend bike frames.

Our objective is open-source (to enable anyone to make and use the products we design). This contrasts with conventional manufacturing, because we want other people to copy and use our designs. Many of them are innovative and we can do sufficiently well by selling components of our design and workstations that make it easy to use them.

For this we are seeking a Special Exception for Light Manufacturing (411.3-8).

In view of zoning considerations and looking at the work of the past year and expectations for 2015, it would be my view that 95% of the time (about 38 hrs out of 40) is (and will be) spent doing design and paperwork consistent with the following two permitted uses:

(411.2-12) Offices, general business or professional.

(411.2-6) Bicycle sales and repair.

A key reason that I like the building so much is because of its large lobby and attractive setting. That lobby is ideal for displaying our ever-growing collection of historically noteworthy bicycle frames, photos, and the like. And from the business side, the lobby is especially well suited to display bikes we design. We will use it as a training area for hands-on seminars on how to easily make high quality bikes of our design here in the USA. In that respect, much of our work appears to fall into the permitted use:

(411.2-10) Institutions, educational..., including museums, ... art galleries.

And one or both of the storefronts may, from time to time, be leased:

(411.2-18) Stores or shops for the conduct of retail business.

By 2016, I expect the work to also involve:

(411.3-8) Light Manufacturing.

But as I seek to make plain later, we do not intend to move into manufacture in the sense of the definition: "the making of articles on a large scale using machinery." We can remain free of dust, odor, and noise nuisance factors

often associated with conventional manufacturing by contracting out heavy work (such as stamping) to other firms and by using the “Maker” concept to distribute light manufacture over many distant locations.

Ideally suited for our needs.



The property is perfect for our purposes. As you see, it has a large parking lot. It is a stand-alone building isolated from neighbors. It can receive UPS and FedEx deliveries without disturbing neighbors. And, it is close to the post office for making rush shipments to customers.

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The Problem We Address.

For every 12 cars sold, 8 bicycles are sold. American bicycles face a huge problem. If you look closely at the majority of the bikes found in stores, they are cookie-cutter dull, completely uninteresting. Too many are sloppily built; too many are excessively heavy; too many have dimensions that are difficult for children to learn on; too many are unpleasant for adults to ride.

None are built in the USA. The higher quality ones mainly come from Taiwan; lower grade ones, mainly from China. I believe the designs Pedjo is developing will change this. Our designs make it possible for individuals to easily build high-quality bicycles anywhere with only a modest equipment outlay.

How We Solve It.

Work at Pedjo can be characterized as a maker oriented rather than manufacturing. To draw attention to the difference, manufacture is defined as, “the making of articles on a large scale using machinery.”

The Pedjo thrust now is not making articles on a large scale, but designing and testing small bicycle-making work stations. These stations have such a light impact on their surroundings that a committed hobbyist or small business person can use them to build high quality bikes— even in an apartment or home. The method is intended to be so simple and clean that it can be done anywhere – certainly not exclusively in Taiwan and China. In short, jobs near where bikes are actually used rather than jobs halfway around the world.

The reason Pedjo can make its advances is that it implements twin tube technology in a completely novel and unanticipated fashion (more about this later). The implementation of this technology makes it possible for Americans to again produce bicycles – this time around, lovely, useful bikes that they can further personalize to their own tastes.

The Need for Localized Bicycle Production.

The need for bicycle making to be localized in the USA is intense. Shipping individual bikes is hugely expensive. I purchased three bikes this year that I needed to study. The shipping costs were \$100 to \$150 each – not because bikes are especially heavy, but because they require large cartons to ship them in. Expenses such as this largely disappear with locally produced bikes.

When properly attended to, bicycling is big business. Take the example of Portland. As far back as 2008, bikes were generating [\\$90 million](#) of economic activity for the city. In a job hungry nation this kind of activity has big payoffs.

Operation to Date and Our Objectives.

The immediate objective is to continue work that I have been doing out of my home in conjunction with Armstrong Technology in Blacksburg (a longstanding relationship). I now also am looking to bring on board people with [Arduino](#) microcontroller experience. In the normal course of events, I expect other openings to develop. The work now is principally office work, except when we test devices and when we make prototypes, using the same tools that I have been using for the past 28 years in my basement – except now they will be centrally and neatly located in a single room in the new building, along with a Pines tubing bender.

Much of what is designed in a one place is then manufactured elsewhere. [Videos](#) such as these illustrate how contract manufacturing works. Take for example, a stamped part which I have manufactured for me. Each bike uses several of them. I have already done the design and paid for the tooling for a firm in Florida to manufacture them for us. The parts reach a favorable price break only when they are manufactured in quantities of many thousands.

Typically each of our prototypes are made, tested, rebuilt, and honed down until we have the product we want.

For a while, we don't anticipate doing any commerce in the sense of “engaging in an activity of buying and selling.” That selling dimension is not apt to take place for most, if not all, of this year. Further, our doors are not open to the public. We need to do our internal design work and proof out our prototypes first.

Ancillary Products.

Though primarily a design house for bicycles, the firm is also involved (now to a lesser extent) in two other areas: 1) Designing a chair that converts into a bed, which also has a retractable commode within the seat, and which also able to provide a gentle rocking motion. This chair is especially suited for the infirm, the incontinent, the disabled,

or the elderly. I have a DVD of the first prototype of this chair which I made here in Pulaski using the equipment now in the basement of my home. I received two patents for various features on this device. 2) Designing a walker that prevents falls for the elderly and those who are recovering and need physical therapy. This project is in its infancy and only a few parts have been made.

Both of these are secondary to the main project which is bicycle frames and eBike control systems, but our bicycle frame making techniques can be used with the chair and the walker.

Serving as an Educational Institution. And How Makers Fit into our Business Model.

This brings us to the educational aspects of the business. A key advantage of the Signet Bank building is that it is an attractive building well suited for seminars. Once our bike building equipment is complete (probably within a year), then we will bring in people in seminar fashion to train them on the equipment. With what they learn, they can start their own businesses and train others. Such methods are the heart of open-source technology. With enough twin-tube developers the Bank Building is well suited for bike shows and meeting points.

Nowadays handmade bicycles are increasingly getting serious attention. The North American Handmade Bicycle Show (NAHBS), as pictured below, is dedicated exclusively to them.

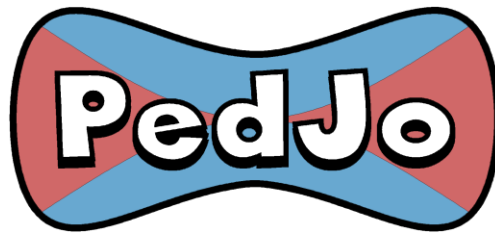
Perhaps one day a large Twin-Tube bike show will look back to an initial Pulaski meeting point to explain its origin.



If we contribute to education, if we treat the customer fairly, if we supply innovative components and devices not readily available elsewhere; if their trips to our Pulaski seminars are beneficial, then – though the path is not certain –we will have a sound business.

Unlikely to be a Pulaski Bikes Competitor.

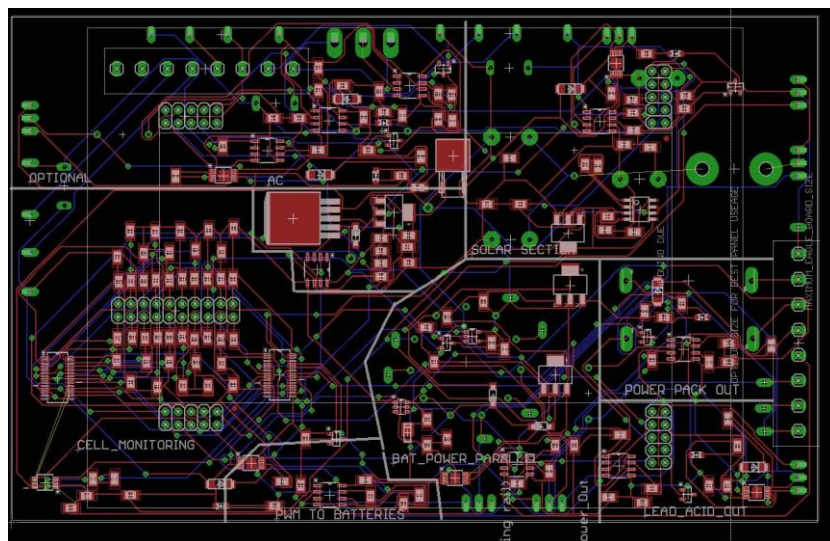
I would like to explicitly point out that I don't believe Pedjo is a competitor for Pulaski Bikes (at the train station). Our areas of focus are different. It is more likely that we will benefit from each other – buying from and selling to each other. My focus is very narrowly related to frame designs, bicycle accessories of our design, electronics, and electrically assisted bikes. It is not involved with bike rental or repair of conventional bikes made elsewhere. Our interests focus on selling and repairing bikes of our own design.



Pedjo Electronics and Solar Option.

The photo below shows our first step in routing a circuit board of our design. This board controls power coming into the battery pack and later going out to the eBike motors. The system accepts a wide variety of inputs. At the owner's discretion, he or she can charge the batteries with AC line voltage, solar, or wind turbines and can use either one or two hub motors for pedal assist. One motor is usually more than enough, but for some steep mountain valleys or San Francisco, two motors are the deluxe way to travel.

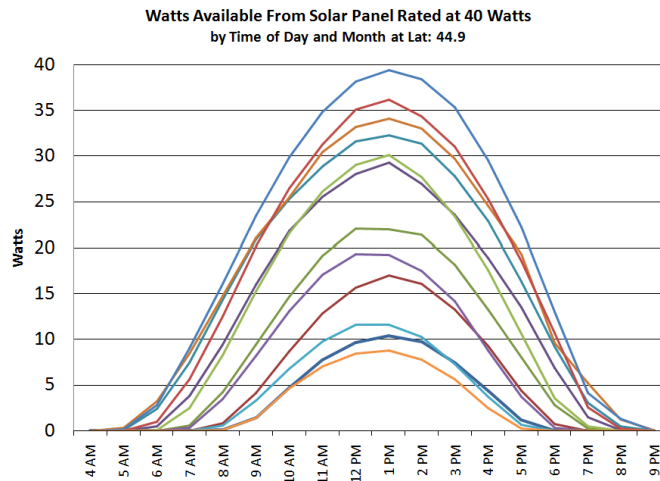
From my shopping runs from Pulaski to Dublin, it has become apparent that with the hills around here about 17.3 amp hours of pedal assist from the battery are required for each mile covered. Knowing this, you can easily size the battery for however many miles you usually travel. Notwithstanding that the cost of electric power to charge batteries is trivially small, you still have the option of having an off the grid eBike charged by solar power.



This is no technological magic. If for example you ride the bike 2 hours a day averaging 17 MPH you cover 34 miles a day. In this scenario you may well have 7 hours or more of good solar charging time when the bike is not being used. Just size the solar panels to provide the needed number of amp hours. [The math goes something like this: 34 miles * 17.3 amp hours per mile = 588 battery amp hours that need to be replenished / 7 hours = a replenishment rate of 84 watts.] And if the solar panels are undersized or not used, that's ok. The system logic will recognize that more charging is needed and will automatically draw that juice from the wall socket because it is a plug-in eBike – a bike commonly plugged in to both solar and the wall socket. Between the two plenty of charging power is available. Keep in mind that this scenario is intense. At 365 days a year, traveling 34 miles a day comes out to 12,410 miles a year. Very few eBikers come close to such intense riding.

For six months out of the year, from April through September under favorable charging conditions, allocating about 3¼sq feet or more of solar panels for each ten pedal-assisted eBike miles traveled daily is a reasonable starting point, adding additional solar panels if needed.

Solar panels universally deliver less power than their rated watts and can be expected to vary roughly as shown in the graph. For a panel rated at 40 watts, each of the 12 graph lines correspond to a month and show average wattage developed at different times during a typical day.



Again no magic: It's not cheap. Our system uses only one very specific type battery (with Headway LiFePO4 cells): because it is resistant to spontaneously bursting into flames, because it has long life, because it has long range, because the user can change and maintain it, and because it has superior power characteristics. It costs upwards of \$450. Unlike a gasoline car where you are paying periodically for gasoline, here the chief cost is an initial battery purchase, which if well cared for may serve you for 8 to 10 years more.

There is more to the eBike option than this. But from the above I hope you have gotten a general drift of it.

Thank you for taking the time to consider our operation and I hope in time you will have an opportunity to ride some of the bikes we will be now developing. I believe you and your family will like them.

2/22/2015